MARCH 17, 1952

NEWS ISSUE

Electrical World

Price 35 Cents

A McGRAW-HILL PUBLICATION

Roy G. Rincliffe, new president of Philadelphia Electric Co. . . . Page 29

Mexico: Feud Grows, Supply Shrinks . . . Page 16

Appliances Are Plentiful . . . Page 50

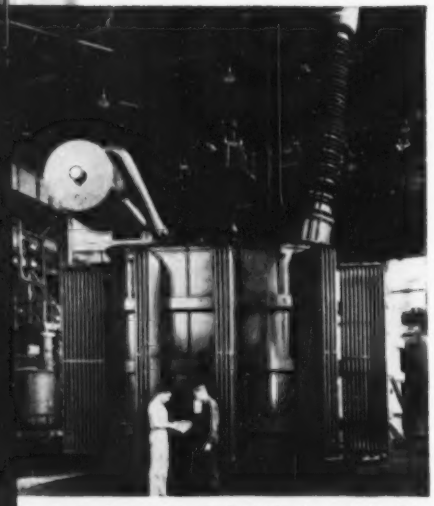
"Higher voltage transmission is a logical development in meeting increasing loads," says S. B. Crary, Mgr., G-E Analytical Engineering Div., here reviewing a problem with W. J. McLachlan, Mgr., Central Station Engineering Div.

Quick, accurate analysis made possible by the G-E Network Analyzer, has been an important factor in determining the technical and economic potentialities of extra high voltage transmission. Studies show that many systems can benefit.

Trend to bigger turbine-generators is illustrated by this 220,000-kva generator shell being inspected by E. E. Parker, Manager, Design Engineering Division, and H. D. Taylor, Manager, Generator Engineering. From an average nameplate rating of less than 30,000-kw for machines shipped in 1946, present orders indicate an increase to 77,000-kw for 1954.

Larger generating units, increased system loads, suggest

NEW HIGHS IN TRANSMISSION VOLTAGES



Designed to investigate the feasibility of extra high voltage equipment, this G-E 360-kv, 10,000-kva transformer passed insulation tests that would permit application on a solidly grounded neutral system of over 500,000 volts.

With today's trend to bigger and bigger generating units and the necessity for carrying increasingly larger blocks of power to load centers, several electric utilities are giving new thought to the possibilities of extra high voltage transmission.

On many systems, 300- to 400-kv levels may prove both practical and economical. Higher voltages would permit increased kilowatt loadings per circuit. With growing loads and mounting difficulties and expense in securing rights-of-way, extra high voltages offer an obvious answer to the problem of expanded transmission capacity. These difficulties could become sufficiently great to justify extra high voltage transmission for much shorter distances than may now be considered economical.

Technology in the design of equipment is well advanced. High voltage circuit breakers already produced have demonstrated adequate design capabilities. Knowledge of how to build almost lightning-free transmission lines, plus the development of high-speed reclosing, make outages a less serious consideration. Reductions in basic insulation levels, proved practical with modern equipment on grounded neutral systems, have simplified transformer design problems and make possible important cost savings.

Construction of an extra high voltage line, nominally rated 330-kv, is now under way by one electric utility. In an industry notable for continuous progress, other developments will surely follow. General Electric Company, Schenectady 5, New York.

MORE POWER TO AMERICA

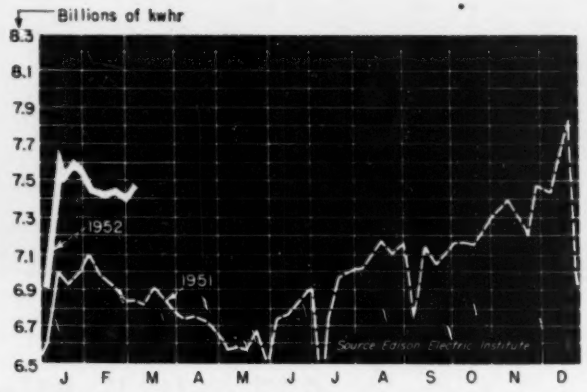
GENERAL ELECTRIC

501-189

VOLUME 137, NO. 11

March 17, 1952

Electrical World



Output Week Ended March 8—7,496,710,000 Kwhr

Per Cent Change From Previous Year

	Total US	New Eng.	Mid. Atlan.	Cent. Ind.	West Cent.	South-east	South Cent.	Rocky Mount.	Pacific NW	Pacific SW
Mar. 8	+10.3	+7.3	+7.9	+8.1	+9.1	+17.2	+19.1	+ 9.1	+5.8	+9.1
Mar. 1	+ 8.7	+6.5	+5.1	+5.3	+6.9	+17.7	+19.7	+ 9.4	+6.6	+4.8
Feb. 23	+ 9.2	+3.9	+6.2	+5.8	+6.8	+15.8	+20.0	+12.0	+9.1	+8.6

Electric Power Statistics

		Latest Month	Preceding Month	Year Ago
Peak Load (Million Kw)	Dec.	70.5	68.7	64.1
Capacity (Million Kw)	Jan.	75.91	75.54	69.10
Production (Billion Kwhr)	Dec.	33.14	32.10	30.66
Hydro		9.13	8.08	8.69
Fuel		24.01	24.02	21.97
Sales (Billion Kwhr)	Dec.	28.44	27.92	26.07
Residential		7.95	7.37	7.01
Commercial		4.77	4.68	4.29
Industrial		13.74	13.89	12.92
Other		1.97	1.97	1.86
Fuel Consumption				
Coal (Million Tons)	Dec.	9.60	9.72	9.39
Oil (Million Barrels)		6.29	5.95	6.32
Gas (Billion Cu Ft)		52.72	53.70	44.22
Net Income Class A & B Utilities ($ Million)	Nov.	70.81	54.02	65.27
Dec. 52 Peak (Million Kw)*	Dec.	81.1	80.7	75.3
Kwhr per Residential Customer (12 Month Average)	Dec.	2,004	1,988	1,830
Revenue per Kwhr Residential Service (12 Month Average)	Dec.	2.81¢	2.82¢	2.88¢
Canadian Production (Billion Kwhr)	Dec.	5.11	4.94	4.67

Business Statistics

FBR Industrial Production Index†††	Jan.	215*	216	216
Gross National Product Annual Rate ($ Billion)	4th Qtr.	333.0	327.6	303.7
E. W. 5 Industry Production Index	Jan.	125.5	125.0	120.1
ENR Construction Cost Index††	Mar.	115.4	115.1	112.8
BLS Consumer's Price Index	Jan.	189.1	189.1	181.5
NEMA Insulation Materials, Sales Index†	Dec.	466	511	564
NEMA Electric Appliance Sales Index†.	Dec.	218	269	364
NEMA Household Refrig. Sales Index†.	Dec.	115	87	219

*Estimated †1936=100 ††1949=100 †††1937-39=100 (Unadjusted)

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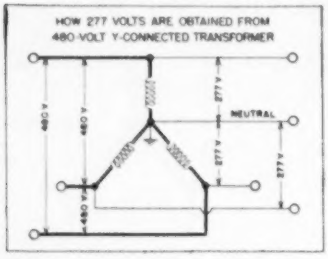
Standard lighting fixtures of any make are used with 277-volt lighting. Simply specify 240-280 volt ballasts. Lamps are the same.



With the common 480-volt, 3-phase, 4-wire distribution system, voltage between any line and ground is 277 volts. For 120-volt needs, small dry-type transformers are used.

Now, for your offices, too... You can use 277-volt lighting

With the G-E remote-control relay and switch it is now practical to use 480Y/277-volt, 3-phase, 4-wire distribution for fluorescent lighting in your offices.

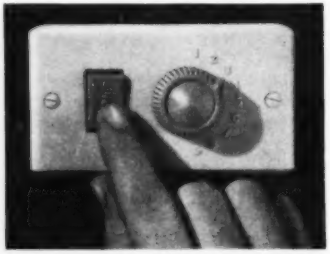
With remote control, only 24 volts are brought down below the ceiling level to wall switches. Switches and switch wiring can be moved as easily as telephone connections.

The use of this system for lighting circuits saves copper, cuts number of circuits required, and makes it possible to use the same distribution system for both lighting and power.

This 277-volt lighting system is already widely used in industrial buildings. Now G-E remote-control wiring makes this higher-voltage distribution system economically practical for new office buildings or for modernization of older ones—wherever large-scale fluorescent lighting is used.

For additional information, or for a copy of the *G-E Remote-Control Manual of Layout and Installation*, get in touch with us. Section D16-327, Construction Materials Division, General Electric Company, Bridgeport 2, Conn.

Heart of the 277-volt lighting system is this RR-2 remote-control relay. It will switch up to 5 amperes of fluorescent load. Operates on 24 volts, mounts through ½-inch knockout of outlet box or fixture.



Individual switches are for surface mounting or flush mounting. Or you can use a master selector switch like this RMS-2 to operate up to nine relays. Control wire carries only 24 volts, less than most telephone circuits.

You can put your confidence in—

GENERAL ELECTRIC

THE ELECTRICAL WEEK

Featured In This Issue

Proposed USBR 230-kv line in Minnesota is likely to be killed by House subcommittee (p 7) . . . Reclamation's protests against revised version of Keating amendment are mild (p 8) . . . **Idaho Power contests** Interior's right to impose "common carrier" provision on transmission lines crossing public lands (p 9) . . . **NRECA convention** told electric co-ops must take more of responsibility for the farm power program (p 10) . . . **Arkansas court overrules PSC** order permitting super-cooperative to build plant, lines for SPA use (p 10) . . . Chief reason for **Mexican power shortage** is bickering between private and public power (p 16) . . . **Marshall Plan aid** starts 60,000-kw unit at Genoa humming (p 18) . . . Postman doesn't have to ring twice at home of Los Angeles engineer (p 23) . . . **Boston Edison** carries out the most extensive reorganization in its history (p 29) . . . Construction of **Falcon power project** on Rio Grande proceeds without controversy (p. 32) . . . Office of Salary Stabilization is trying to end **pirating of engineers** (p 35) . . . SEC annual report shows that equity offerings have reached a new post-war high (p 45) . . . **Appliances** are plentiful (p 50).

• • •

Latest from Washington—DPA is on the verge of issuing its report on electric power expansion program as a follow-up to Morehouse Committee report . . . SEC proposal to assess service fees raised such an uproar (EW, March 3, p 46) that hearings had to be called to consider the protests.

Pacific P & L's Pres Paul B. McKee says that "our properties are not for sale" in the Dalles area, and "we intend to stay in business here as long as that is the wish of the majority."

Central Louisiana Electric makes two offers to sell City of Franklin all or portion of its electricity at a special rate. One is that the city operate its own plant and purchase its additional requirements from company. The other is for the city to close the plant and keep it on a standby basis and buy all of its power from the company at an 8-mill per kwhr rate.

Comments in 1951 Annual Reports—Louisville G & E will spend $16 million in 1952 and another $16 million in 1953 for construction as compared with $8.3 million spent in 1951. Company reports that about 66% of shareholders are residents of Kentucky and own 65% of company's stock at year end . . . **Hartford Electric Light** reveals that based on survey by Gilbert Associates, New York, the annual accrual for depreciation will be at the rate of 2¼% commencing Jan. 1, 1952, instead of 1¾%, the rate used in the last two years.

Utility labor law revisions recommended by Gov John Stewart Battle to eliminate any taint of unconstitutionality in the statute and a tighter anti-picketing bill clear the Virginia General Assembly.

Depa's Administrator James F. Fairman tells the NRECA convention in Chicago that "Looking beyond 1952, there is in prospect a program of the highest security classification, but which I am sure you have seen reported in the papers, which will require tremendous quantities of electric power. If this program materializes, its influence on the power supply situation in 1953-1954 will be felt throughout the entire country."

Both electrical unions of AFL and CIO in New York are now in favor of further developments of power at Niagara Falls by the five tax-paying electric companies.

Recent storms in northern New Mexico have piled up record 144½ in. of snow at Cumbres Pass at the head of Rio Grande watershed. Floods have been predicted as a virtual certainty in Albuquerque area, and Public Service of New Mexico is rushing to complete a 3-ft dike around Prager station, its major operating plant in Albuquerque.

American P & L minority stockholders are asking SEC permission to solicit American's stockholders to seek a special meeting (holders of 25% of 2,342,311 shares would have to call such a meeting) to elect directors who will order immediate distribution of Washington Water Power stock to American's stockholders. WWP has increased its first quarterly common dividends in 1952 to 30¢ a share versus 25¢ a share quarterly in 1951.

Not a single objection was raised to a 15-18% rate increase across-the-board by Cambridge Electric Light Co at recently completed hearings before the Massachusetts commission. Well-timed advance announcements to the public helped, with emphasis upon previously declared moderate prices of service.

From the Southeast—South Carolina E & G begins changing all industrial customers' meters to measure volt-ampere hours instead of watthours—in order to induce them to improve their power factors . . . **Duke Power** is making studies for 80-mile, 230-kv, double-circuit steel transmission line, first such high voltage line in the South . . . **IBEW, AFL,** is drafting a letter to Governor Battle requesting the state be called into contract negotiations between **Virginia E & P** and union. Under the law, a second conference was to be held March 14, with a state representative present. If those talks fail, and either side fails to agree to arbitration, a five-week strike notice must be filed with the governor . . . **Carolina P & L** is planning a community development program in its area. It will be somewhat similar to Georgia Power's and Arkansas Power & Light's Home Town programs.

Congratulations—Pacific PS elects **J. K. Horton** president, succeeding Ernest G. Lawson, retired . . . United Engineers & Constructors, Inc., elects **Henry B. Bryans,** formerly Philadelphia Electric Co's president who retired last month, vice president and director.

THE ELECTRICAL WEEK

CONTINUED

More from Washington—Changes in housing regulations issued recently permit use of 15 lb more copper per dwelling unit in houses or apartments with **electrical energy heating systems.** The hold-down on aluminum is lifted somewhat, too: Builders are permitted to substitute aluminum for copper wiring, and permitted to use two lb of aluminum in place of one lb of copper . . . Running fight among the farm organizations continues. House Appropriations Committee hearings show that the American Farm Bureau Federation, biggest and most powerful farm organization, favors cutting down **REA administrative funds** to $5.7 million from the $8.4 million recommended by the President. Fair dealing farmers' unions have been taking Bureau Pres Allan Kline to task for this proposed 30% cut in funds.

TVA said it was merely trying to increase its sources of coal supply when the Chicago Tribune last week charged the agency had let more than $40 million worth of coal contracts to inexperienced operators. Asked whether he had investigated the contractors' backgrounds TVA Chairman Gordon Clapp said "The facts are known to our buyers."

City of Seattle installs fluorescent street lights in Ballard business district. This is the first city west of Mississippi River to have such lights, J. W. A. Bollong, city traffic engineer declares.

In Bonneville Power Administration's annual report for fiscal 1951, Administrator Paul J. Raver recommended, in a letter to the Secretary of the Interior, accompanying the report, installation of 400,000 kw of fuel-fired generation to firm an equal amount of interruptible power. He also "strongly advocated" lines to California and Idaho to firm an additional 220,000 kw of interruptible power.

Illinois Power has installed a microwave communications system between Decatur, Ill., and Havana, Hennepin, and Wood River, Ill. It also has intercommunications with Union Electric Co of Missouri at Cahokia and Venice, Ill., and Central Illinois PS at Hutsonville, Ill.

IN THE INDUSTRY

In their indifference to voting electric company executives and employees seem to be typical Americans. In the last presidential election only 51% of the eligible voters bothered to go to the polls. In the last Congressional election one eastern utility has learned that only 18% of its supervisory employees voted.

To counteract this indifference a number of utilities are planning programs to encourage everyone to vote. To aid these companies the Electric Companies Public Information Program will have ready for distribution by the end of March a 24-page booklet, "Your Ballot Is Boss." It may be secured for a small charge from Bozell & Jacobs, 2 West 45th St, New York 36, N. Y.

The booklet, endorsed by the American Heritage Foundation, is devoted to getting all Americans, regardless of political affiliation, to the polls on election day. It is intended to dispel the mistaken notions many citizens have about voting and politics. For instance, it points out how important "one vote" is. In the 1884 election if James G. Blaine had received just "one vote" more in each New York State precinct, he would have defeated Grover Cleveland.

"Your Ballot Is Boss" also defends the place of politics in our democratic government. "Politics," it states, is "neither degrading nor dishonest. It's a practical science and functions according to the simple rule that in organization there is strength. Sure, there are some dishonest politicians, but there are also many hard-working, down-to-earth, public-spirited men and women engaged in political work."

Chapters are devoted to the election laws of all the states, the procedure to get names of candidates on the ballot, and the mechanics of registering and voting. The importance of political parties is emphasized. And there is an explanation of how the ordinary citizen can participate in election campaigns.

The booklet is suitable for distribution to employees, stockholders, and the public. If everybody will vote, there need not be so much worry about the future of the private enterprise system.

TECHNICAL NOTES

ARCHER E. KNOWLTON

Amyl nitrates in small quantities help make Diesel fuel ignite more readily.

Basic research was "sold" to Congress in the form of the authorized National Science Foundation. No one appeared to support the measure at the appropriation stage. Pitiful budget. Scientists and engineers are sad politicians.

Flat-type oil-filled cable recently connecting Sweden and Denmark needs no reservoirs. The flat sides compensate for changes in oil volume with load.

Electrolytic refining of copper takes 28 days and consumes about 60 watthours per pound. Aluminum production takes some 20 times as much energy.

Junction-type germanium transistors (positive crystal between two negatives) gives 40-50 db amplification per stage and avoid most of the limitations of the point-type transistor.

Transistors of the junction type are inherently efficient, rugged, stable, and capable of the power levels of vacuum tube amplifiers. No filament heating is required. No filament—period.

Oil pipe line booster stations are being remote pushbutton controlled by microwave transmission at 950-960 mc with three channels.

Packing fraction is the excess of atomic weight over mass number and for hydrogen it is 1.008-1 = 0.008. It accounts for all the tremendous amounts of energy available from hydrogen nuclear reactions.

Minnesota 230-Kv Line Faces Defeat

Despite backing of utilities and co-ops, USBR transmission project is likely to be killed by House subcommittee

Rarely do electric companies and rural electric cooperatives band together to support a federal agency in building a huge transmission line.

Even more rarely does Congress turn thumbs down on a project backed by such a powerful combination without hearing a single opposing witness.

Yet, there is a real possibility this will occur in the case of the 230-kv, $54-million transmission line which the Bureau of Reclamation proposes to build through southwestern Minnesota (see map).

Agreement between 20 rural cooperatives and three Minnesota power companies to support the bureau request was made last year after Congress had earlier disapproved a similar request.

The Provisions . . . Main points of this agreement are:

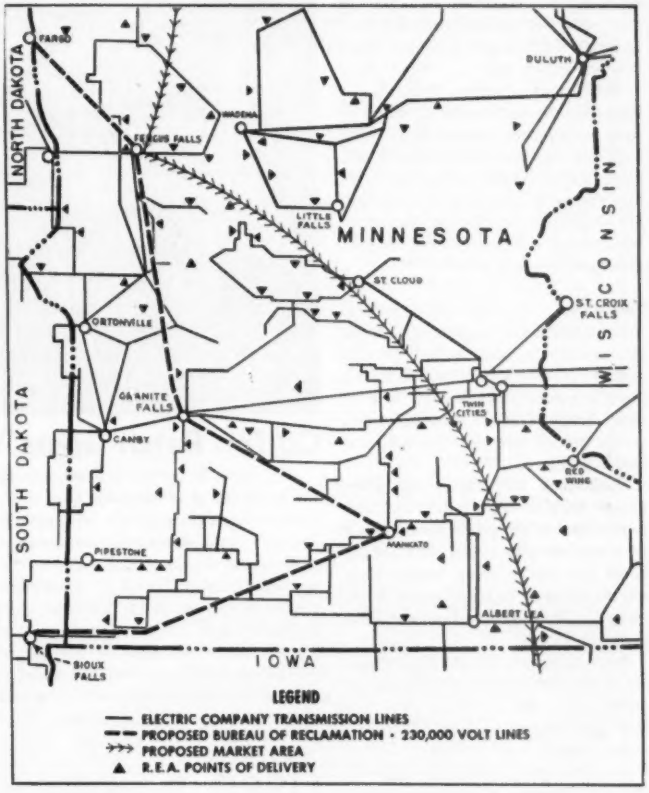
1. Companies and cooperatives will support the bureau in obtaining funds for construction of the 230-kv line. Initial request is for $2,913,600.

2. They will oppose the appropriation of funds to be used by any federal agency for construction of any line of lesser voltage in the area.

3. They also will oppose the organization of any group for the purpose of constructing any general transmission system or grid system of lower voltage in the area.

4. The cooperatives agree to withdraw all applications made to Rural Electrification Administration for funds for the construction of generating and transmission systems, other than requests for funds for the construction of transmission lines to new or re-located distribution substations connecting their lines to the lines of the power suppliers.

Previous to reaching the agreement, the co-ops had asked REA for $17.6 million loan to finance an area-wide generation and transmission cooperative, and indicated they might later come back for another $12.4 million loan to complete the job.



Parties to Pact . . . Northern States Power Co, Interstate Power Co, and Otter Tail Power Co have entered into this agreement with the 20 co-ops, which are represented by the Power Cooperative Development Committee.

It is claimed the agreement would achieve great economy through use of a co-ordinated construction program. Further it is claimed the agreement would provide for getting the most efficient use from existing facilities since power companies are now serving the substations of the preference customers. More important, it offers to the preference customers a chance of advantages that may come from availability of federally produced power from Missouri Basin projects.

On the face of it, this united support for a line would seem to have plenty of political appeal. Yet when spokesmen for the three parties appeared before a House appropriations subcommittee last month, their request drew opposition from all sides.

Opposition Encountered . . . Committee member W. F. Norrell, Arkansas Democrat who appears to favor development by electric companies wherever possible had this to say, "this committee is not going to favor construction of a great power transmission line system somewhere in order to create electricity to the smaller line below . . . I do not think the committee should favor building the line, or doing what the utilities ought to do."

Rep Henry M. Jackson, another committee member who is an admitted public power advocate, asked a series of questions in an effort to determine the economic feasibility of

the proposed line. When his questions to both company and cooperative spokesmen brought no satisfactory reply, Jackson commented, ". . . I was quite surprised to hear there had been so much dodging of something which is very fundamental."

Rep Ivor D. Fenton, Pennsylvania Republican who usually favors private development, commented, "what I cannot understand is why, where there are a number of private utilities serving a certain area, they cannot share the expenses of the heavy line coming in there, at least, the part that traverses their area."

Partial Aid . . . Rep Ben F. Jensen, Iowa Republican, suggested it might be possible for the federal government to finance a line from Garrison Dam to a point just inside the Minnesota. Presumably, the companies and co-ops would take over transmission line from there.

Spokesmen for the power companies testified they would be able to take care of the power needs within their service areas. But they simply could not justify going outside their service areas to bring Missouri Basin power all the way from Garrison Dam in North Dakota.

As it now adds up, the subcommittee is certain to turn down the requests for funds to begin this line. It is likely the full House Appropriations Committee will follow suit. Rep Carl Andersen, Minnesota Republican, is promising an all-out fight when the Interior funds bill hits the House floor. He will attempt to amend it to include funds for the Minnesota line. Failing that, he may move to recommit the bill to committee with instructions for that group to include funds for the line.

Of course, if the House turns down the money for the line, there is still a chance for the Senate to put it in and argue the matter out in conference.

Only if a stronger presentation is made to the Senate committee does the plan have a ghost of a chance.

Boston Ed Orders Unit

Boston Edison Co has ordered a third 81,250-kw steam generating unit for installation at its Edgar Station, North Weymouth, Mass., in 1954. A second unit is scheduled to go on the line next summer.

Cotton Patch Gives Way to Power

Gov James F. Byrnes of South Carolina turns the first spade of earth to mark the beginning of construction work on South Carolina Electric & Gas Co's $45-million steam plant on the Savannah River. The plant will serve the Atomic Energy Commission's hydrogen-bomb materials plant at Aiken.

Watching the South Carolina governor dig up what had been a cotton patch are (left to right): Pres S. C. McMeekin of South Carolina E&G; J. C. Darby, chairman of the South Carolina Public Service Commission; Norman D. Urquhart, chief construction engineer of South Carolina E&G, for whom the plant is named; and State Senator Dorcey K. Lybrand of Aiken County.

AEC recently approved a contract by du Pont Co, which will operate the H-bomb plant, to buy 30,000 kw of power from Urquhart Station. The power plant will have an initial capacity of 150,000 kw and an ultimate capacity of 300,000 kw.

USBR Protest on Rider Mild

Reclamation puts up only token fight to kill the Keating amendment curbing the building of transmission lines

Bureau of Reclamation is making no more than a token effort to get rid of the watered-down Keating amendment this year.

This is the rider tacked on to last year's Interior appropriations bill which prohibits the bureau from starting electric transmission lines in areas covered by wheeling contracts with electric utilities unless the Secretary of Interior finds the utilities unable or unwilling to build the additional lines.

In its original form, the amendment would have been a straight-out mandatory prohibition against building lines in wheeling areas. But the final version allows the Interior Secretary to use his discretion in certifying the need for the proposed lines.

Evidence that Reclamation is not disturbed by the rider is contained in a recently released hearing of the House subcommittee on Interior appropriations.

The bureau is asking deletion of the amendment, but when asked to give reasons for the request, Assistant Reclamation Commissioner Goodrich W. Lineweaver said:

"I do not have anything in particular. We think that the committee controls the situation by the appropriations that it makes. We have progressed very rapidly with the wheeling contracts. Our relationships with the utilities have been getting along very well. We cannot see any necessity for the Keating amendment being continued so long as the committee controls appropriations."

Interior Interference Contested

Idaho Power disputes department's right to impose "common carrier" provision on transmission systems

Interior Department attempts to impose a limited "common carrier" provision on electric transmission lines crossing public lands is getting another court test. Arguments in this most recent case were concluded before a federal district court in Washington early last week.

Again Idaho Power Co is carrying the ball for the utilities. At issue in this latest case is whether Interior has authority to compel the company to share with the government any excess capacity on a transmission line which traverses public lands. Interior seeks to write this and other restrictive conditions in all permits issued to electric utilities for constructing transmission lines over lands under Interior jurisdiction.

Interior Could Interfere . . . Furthermore, these conditions would allow the department to increase the capacity of such transmission lines at its own expense and take over this additional capacity for permanent use. But the most sweeping condition written into these land easement permits would require the company to surrender the rights-of-way and transmission lines to the federal, state, or local governments which a regional administrator may designate.

A second major issue in this case is whether Interior may require a company to sign a written stipulation agreeing to these conditions before a right-of-way application will be considered.

On this second issue, Idaho Power argues that Interior is attempting to deprive the company of a court test of the other conditions of the permits. A recent Supreme Court decision (U. S. vs Wunderlick) held that a provision in a contract with the federal government is incontrovertible except in cases of actual fraud.

69-Kv Line Involved . . . Transmission line involved in this case is a 69-kv line from Huntington to Baker, Ore., which cost approximately half a million dollars. It was completed last November, after Interior granted the company a preliminary consent to construct the line at its own risk.

Authority under which the Interior Secretary is acting is the Public Lands Act of 1911, a section of which empowers the proper administrative official "under general regulations to be fixed by him, to grant an easement for rights-of-way for a period not exceeding 50 years . . . over, across, and upon the public lands and reservations of the U. S. for electrical poles and lines for transmission and distribution of electric power . . . ."

Calls Regulations Illegal . . . Idaho Power holds that Interior regulations for issuing the right-of-way permits are illegal on the following grounds:

1. They are beyond any power delegated in the 1911 act.

2. They have no relation to the act, and are, in fact, in direct opposition to its objectives.

3. In effect, they constitute attempted administrative legislation by the Secretary.

4. They are arbitrary, capricious, and unreasonable and would deprive the company of property without due process of law.

In this case, Justice Department lawyers acting on behalf of Interior argue:

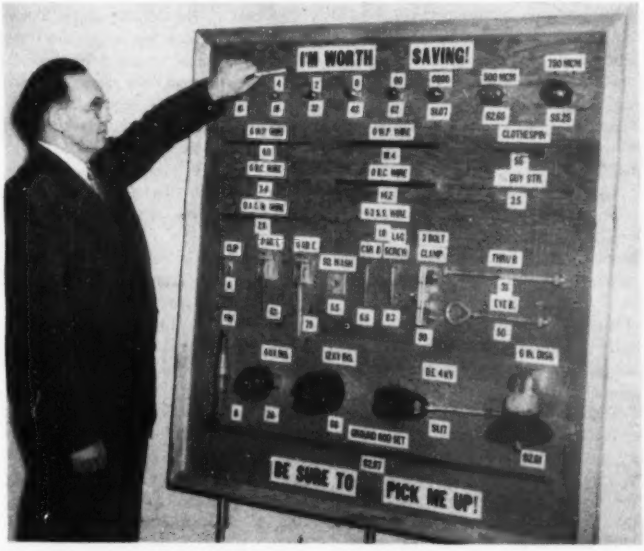
1. The Secretary is acting within his powers in imposing these right-of-way conditions since the right to deny a permit also carries with it the right to condition a permit.

2. The Secretary has the responsibility of marketing power from federal projects and Congress has urged him to make use of existing lines where available.

3. These regulations are reasonable, and should be helpful to the company in that liberal payment is proposed for use of the excess line capacity.

A court decision may not be handed down for several weeks.

Idaho Power is waging a similar case against Federal Power Commission before the Supreme Court.



Nuts and Bolts Mean Dollars and Cents

Concerned about the amount of small items lost in everyday working operations, Idaho Power Co Vice Pres Wayne B. Smith decided to do something to make the utility's workers more cost conscious. The result, shown above, was a display board listing the cost of various items commonly used in the field.

The board is moved from place to place so its message will reach as many employees as possible. Company officials hope it will result in savings of hundreds of dollars and conservation of scarce materials.

Co-ops Told to Help REA Out...

. . . by assuming more responsibility for the farm power program at NRECA annual convention in Chicago last week

Electric cooperatives must take more of the responsibility for the farm power program—taking the load off the Rural Electrification Administration in Washington. This was the counsel of REA Administrator Claude R. Wickard to some 4,000 delegates attending the annual convention of the National Rural Electric Cooperative Association in Chicago last week.

The REA chief said his organization must turn more of its efforts toward building up the rural telephone program. "I feel we must be on the alert for opportunities to eliminate work where that can be done without seriously . . . jeopardizing the success of the power program," he said.

J. F. FAIRMAN

Projects Contested . . . Clyde R. Ellis, executive manager of NRECA, told the convention that one-eighth of the REA program is now being contested either before state commissions or in the courts. Wickard said his agency was taking this litigation "very seriously." "There is so much at stake," he added, "that we feel we must take the very best people in REA to look after the defense."

In a welcome address to the co-op members, Illinois Gov Adlai Stevenson praised the work of REA. "I don't know what better argument there could be for the proposition that there is a proper place in our economic scheme for both government action and private enterprise," he said. Stevenson, sometimes mentioned as a possible Democratic candidate for President, commented "I think government should be as small in scope as possible and step in only where private business fails or cannot meet the needs of the people."

Utilities Warned . . . Electric utilities were warned by Defense Electric Power Administrator James F. Fairman to take a close look at optimistic reports that decontrol of materials is in sight. He noted that utilities are still having a tough time getting such things as boilers, transformers, steel plate, and high pressure tubing.

"As soon as it becomes possible for power suppliers to obtain all necessary materials and equipment without controls," Fairman continued, "Depa will be the first to advocate decontrol." He hinted there could be little hope of decontrol until the defense program reached its peak.

In Washington, the defense planners estimated the military requirements for many raw materials would reach their peaks during the third quarter of this year. But it was emphasized that this did not include copper and some other raw materials.

Scarcities . . . Fairman pin-pointed some of the scarcities now facing utilities. Both copper and aluminum remain scarce, he said, as well as heavy shapes and plates.

One reason for the reports of decontrol, he went on, is that CMP is operating more smoothly. At first when more CMP tickets were given out than mills could handle, many people complained the ticket was only a hunting license. But, "if the position is only slightly reversed and some vacant space appears on mill schedules, then some people jump to the conclusion that you do not need controls at all."

Fairman then gave this example of the problems which face utilities in obtaining their material requirements for the remainder of the year:

"The generator manufacturers have scheduled for delivery in 1952 nearly twice as many kw as they actually delivered in 1951. The boiler manufacturers have scheduled for our industry in 1952 more than twice as much capacity as they shipped last year. Meeting these production schedules is going to require an extraordinary combination of material supply and manufacturing performance. The production of generators and boilers scheduled for 1953 is even greater than 1952. In 1953, indications are that we will be reaching the limits of present generator manufacturing capacity of the country."

PSC Is Overruled

Arkansas circuit court holds super-cooperative cannot build plant, lines for use of SPA

An Arkansas circuit court has found that a super-cooperative in that state has no authority to build generating and transmission facilities for use by Southwestern Power Administration.

Circuit Court Judge Guy Amsler on March 5 overruled an order of the Arkansas Public Service Commission granting a permit to the Arkansas Electric Cooperative Corporation for construction of a 30,000 kw steam generating plant and 544 miles of 69-kv transmission line. The super-co-op plans to appeal the case to the Arkansas Supreme Court.

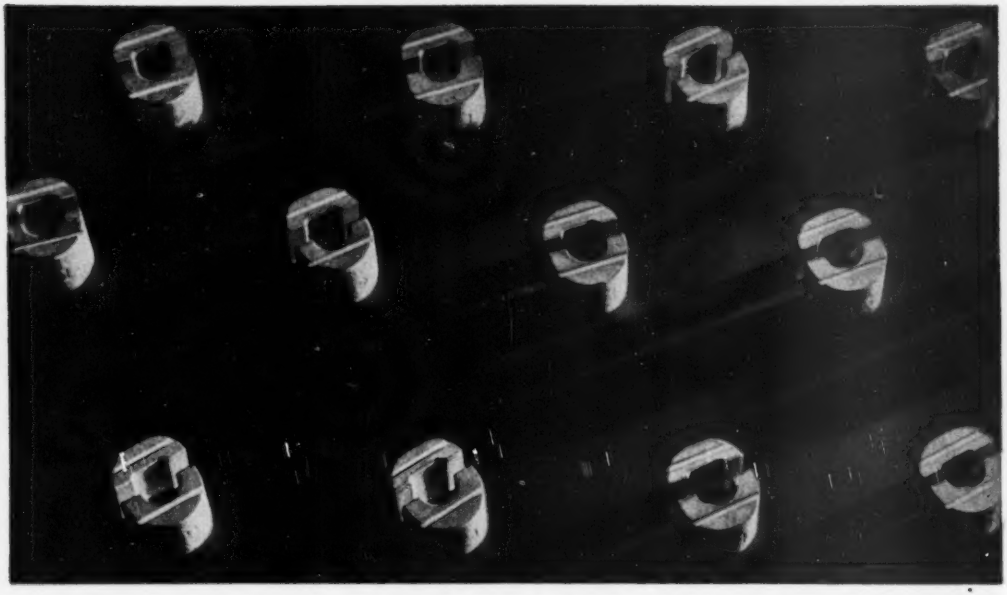
The commission order was appealed by the Southwestern Gas & Electric Co, Arkansas Power & Light Co, Oklahoma Gas & Electric Co, and the International Brotherhood of Electrical Workers, AFL.

Main Points of Ruling . . . Main points of Judge Amsler's ruling were:

Under Arkansas statutes providing for creation of rural electric cooperatives, co-ops can serve power only to members and SPA is not eligible for membership. SPA has authority to market power only from federally constructed multiple purpose dams. Hence, it has no authority to market power from the co-op steam plant.

The decision overrides the Arkansas commission, which split 2-1 on granting the permit. Judge Amsler incorporated the minority report of commission member Scott Wood as his decision in the case.

The proposed steam plant was to be built at Ozark, Ark. Estimated cost of the plant and transmission facilities was placed at $10,565,000.



Sangamo J Meters

have damping magnets that are *permanent*

Sangamo Type J Watthour Meters are equipped with surge-proof alnico damping magnets to completely eliminate change in calibration.

Because the damping magnets control the speed of the meter, accuracy depends on the permanence of their strength. Alnico has many times the resistance to the demagnetizing effects of lightning surges as the best forged steel magnet materials.

The aluminum mounting clamp provides additional protection since it acts as an effective shield, further insuring the permanence of the damping force.

No report has ever been received of a J Meter speeding up in service due to loss in damping strength . . . and more than five million Sangamo Type J Watthour Meters are in service . . . many for more than ten years!

Only Measured Facts are Known Facts

SANGAMO
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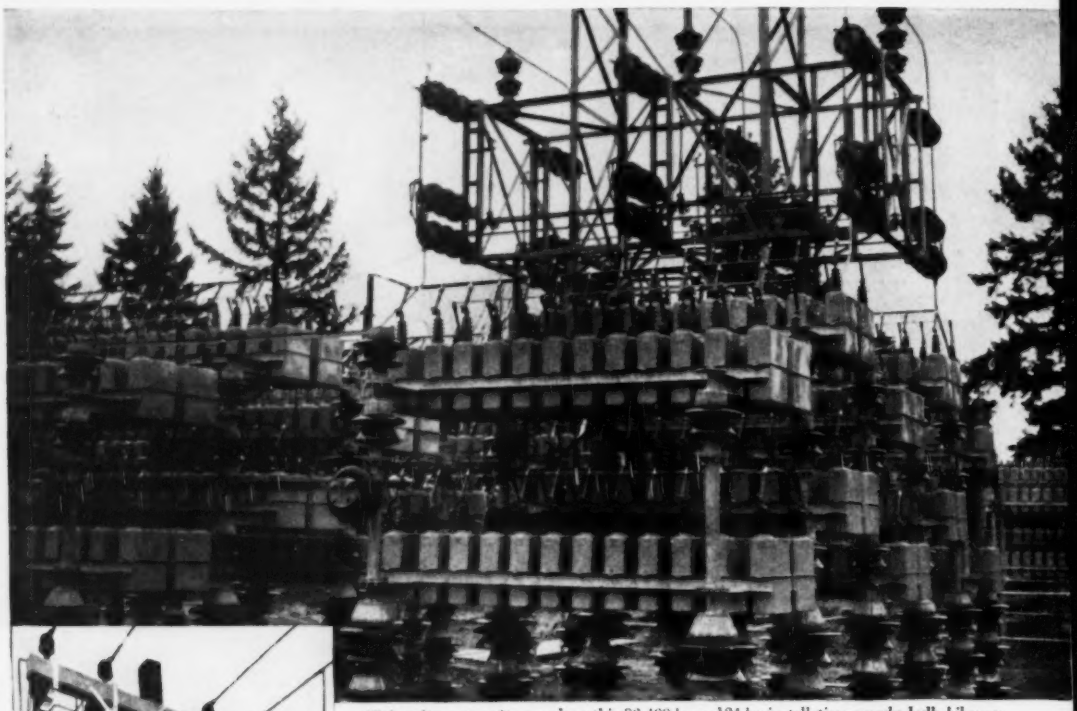
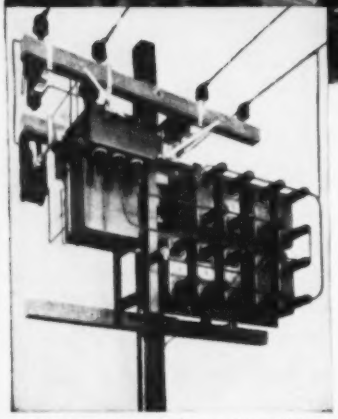
Sangamo J Meters have proved their ability to meet today's requirements and tomorrow's anticipated loads with sustained accuracy, economy of maintenance and troublefree performance.

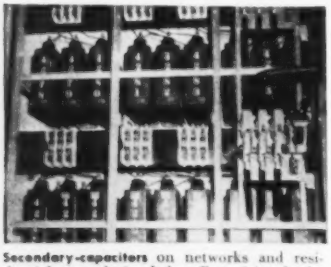
SM52-3A



High-voltage capacitors such as this 32,400-kvar, 124-kv installation, supply bulk kilovars —re-enforce subtransmission and transmission voltages—reduce thermal loading on substations and generators.



Switched-capacitors such as this 225-kvar unit supplement fixed capacitors in raising voltage levels and reducing substation loading at peak conditions.



Secondary-capacitors on networks and residential secondaries help offset rising loads. They keep power factor up—permit heavier loading within permissible voltage limits.

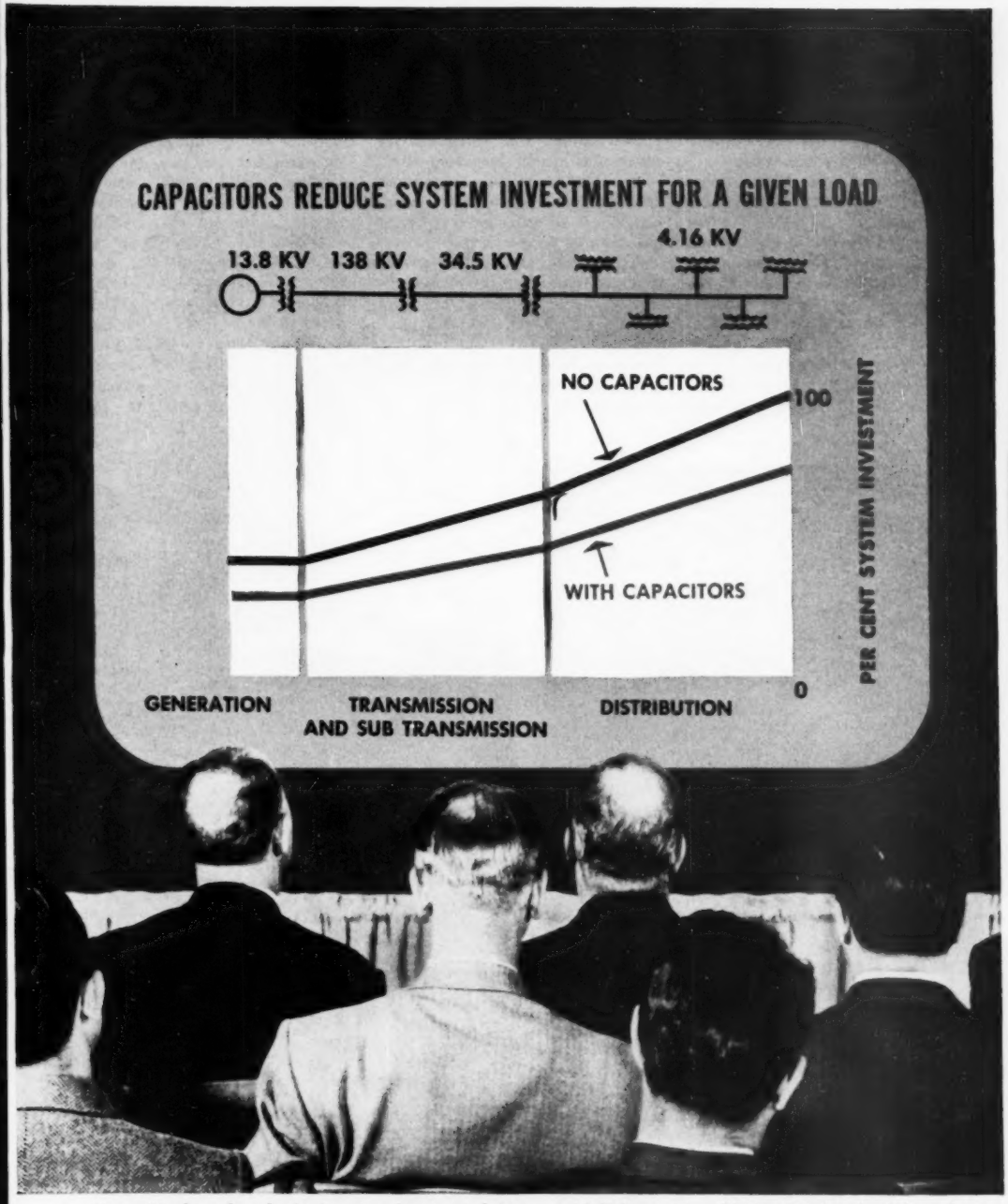
System-wide use of G-E Capacitors holds key to new savings

Many types available to provide quick release of kw capacity—reduce system investment

As systems operate closer and closer to capacity, electric utilities in all parts of the country will find it profitable to take another look at capacitors—and capacitor economics.

Capacitors have long provided one of the fastest, cheapest ways to release system capacity. But today, as opposed to a few years ago, they can be used in more places—and in larger quantities. High-voltage banks, switched pole-type equipments, 230-volt units for secondaries all offer opportunities—which were not available even five years ago—for increasing system capacity while lowering investment per kw. By reducing system current for a given load, they usually free distribution, substation, transmission and generating facilities for the delivery of additional kilowatt load—at a fraction of the cost—and in a fraction of the time it would take to add new capacity.

Even if you have installed a high ratio of capacitor kvar to system kw peak load, it will pay you to re-evaluate today. A General Electric specialist will be glad to work with you in determining what proportion of your increased load can be economically supplied by capacitors. Call your nearest G-E Sales Office or write *General Electric Company, Schenectady 5, N.Y.*



Above slide shows the reduction in system investment that capacitors made on an actual system. It's taken from General Electric's Utility capacitor slidefilm which has already been shown to more than 100 major utilities.

407-35

GENERAL ELECTRIC

Dams Promote Legal Business

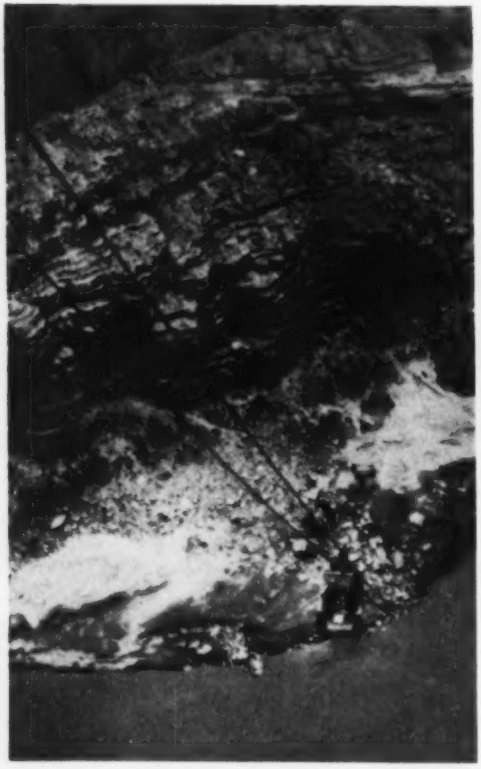
Construction of the McNary and The Dalles Dams on the Columbia River between the states of Washington and Oregon has boomed legal business at Walla Walla, Wash.

In one case, U. S. District Judge Sam Driver ruled that the government's taking of land for the McNary Dam project is neither "arbitrary" nor "capricious." In another, he signed an order halting construction of a $2-million bridge over the river near the site of The Dalles Dam. Meanwhile, Attorney Charles Luce of Walla Walla, representing three Indian tribes, predicted that Indians would make their last stand for traditional Columbia River fishing rights on the lake behind McNary Dam.

The first case was brought by a property owner who challenged the government action in taking 8,000 acres of land for McNary Dam, in addition to 38,000 acres for the reservoir. Judge Driver found the government's action necessary, ruled against the property owner, and declared that if he ruled against the government "I soon would be designing the entire McNary project."

Bridge in the Way . . . The second case is a condemnation action brought by the Department of Justice lands division against the bridge sponsors—Washington's Klickitat County, Oregon's Wasco County, the City of The Dalles, Ore., and the states of Washington and Oregon—and the contractor, Guy F. Atkinson Co. The complaint said the bridge, for which approaches and some piers have been completed, would interfere with access to The Dalles Dam and with construction of the dam. Judge Driver's order gives title to bridge approach land on the Washington side of the river to the federal government.

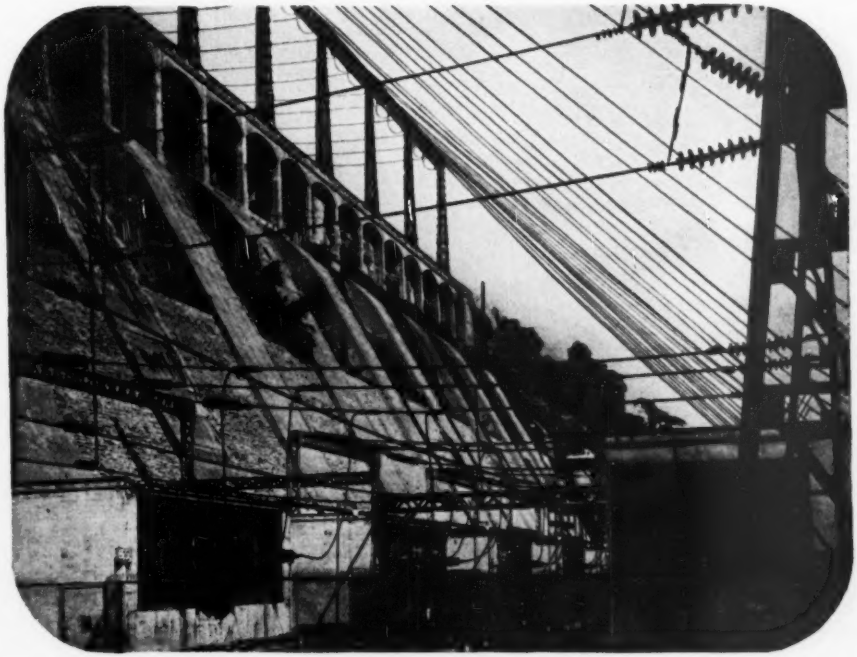
The reservoir created by The Dalles Dam will flood Celilo Falls, traditional fishing ground for Pacific Northwest tribes. A House subcommittee has been asked to study compensation the Indians should get for the loss.



USBR Engineers Try a New Way of Commuting to Work

Going to work every day is a thrill in itself for Bureau of Reclamation engineers taking soundings on the Colorado River at Marble Canyon, Ariz. The trip from the work camp on one side of the river is made every day in a small metal "skip" which lowers the men 716 ft to the opposite shore (picture at left). Here tests are being made to determine if a hydroelectric dam can be built. To get out of the canyon the engineers must take another ride from the rim of the plateau above in an open "skip" (foreground of picture at right) over 2,200 ft of cable.

V. C. CABLE



Specify Roebling V. C. Cable for top resistance to heat, oil and grease

THROUGH continual laboratory developments and progressive manufacturing methods, Roebling Varnished Cambric Cable has been constantly improved. Today this cable has absolutely top resistance to heat, oil and grease . . . and it's the most dependable cable you can use for leads on generators, transformers, motor and oil switches, and for general distribution of heavy power loads in manufacturing and industrial plants.

Roebling V.C. is made in single conductor sizes from 2,000,000 C.M. to #14 A.W.G.; in multiple conductor sizes from 750,000 C.M. to #14 A.W.G. Recommended for use to 17,000v between phases in single or multiple conductor construction; and to 26,000v for single conductor grounded neutral.

Large quantities of Roebling's complete wire and cable line are now required for rearmament. We and our distributors will, however, do all that we can to meet your needs. John A. Roebling's Sons Company, Trenton 2, N. J.

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COMISION FEDERAL DE ELECTRICIDAD has been installing modern plants in northern Mexico. This 25,000-kw station serves Gomez Palacio

Mexico: Feud Grows, Supply Shrinks

Bickering between public and private interests brings on acute power shortages south of the Rio Grande

Electricity in Mexico is in critically short supply. Chief reason is that bickering between private and public power is every bit as intense there as it is in the United States.

Power shortages are most acute where the bickering is most acute. Only in Mexico City, where a modus vivendi has been reached between the government and a private company, do conditions approach the normal.

Loans from the International Bank for Reconstruction and Development, both to public and private power, seem destined to play a big part in the battle. By 1955 Mexico will have generating capacity estimated at 1,850,000 kw, nearly half of it financed by the World Bank. In January the government got a jump ahead of private interests by negotiating a $29.7 million loan to finance seven major projects in its '52-'55 construction program. The bank has a total investment of $79.8 million in Mexican power, of which $26 million is being used by Mexican Light & Power, Ltd, a Canadian-owned company, and the remainder by the Federal Electricty Commission (Comision Federal de Electricidad).

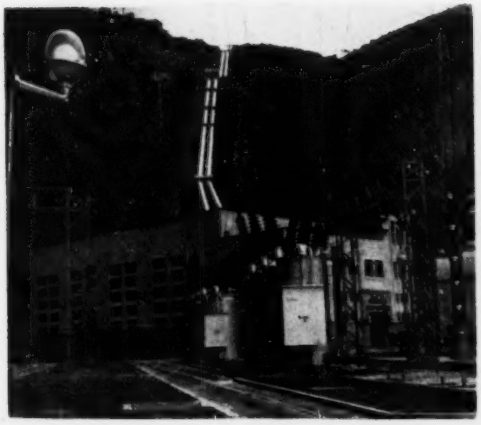
Because of the rapid growth of population and industry, the added projects will be sufficient to cover only most essential needs. The most important project included in the commission's new loan is a 200,000-kw hydroelectric installation at Tingambato in the State of Mexico. This will be the largest in the country, as well as the largest in the Commission's "Miguel Aleman System" northwest of Mexico City, which supplies part of the power used there. The bulk of the system's power is bought and distributed by Mexlight.

The Theory . . . Where private companies are established, the commission has usually confined itself to providing such increases of generating capacity as the companies themselves were unable to finance and to selling power produced to private companies for distribution through their networks. In rural areas where there is no organized supply, the commission generates and retails the power.

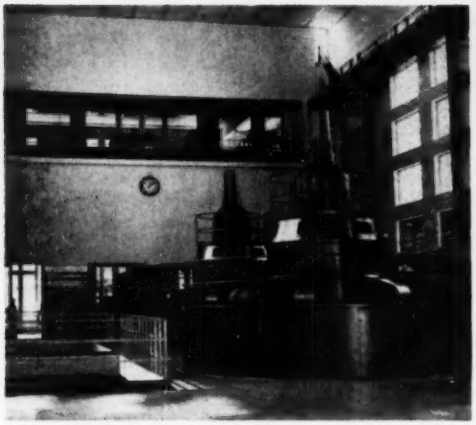
This theory hasn't been working out in practice lately, and the commission has been bumping heads with private utilities in several areas.

Until the Cardenas revolution in 1937, four big power companies, largely foreign-owned, supplied all the power used in Mexico. The revolution brought expropriation of oil companies and with it a general hostility toward foreign-owned enterprises. The government created a Federal Electricity Commission directed by law to "organize and direct a national system of generation, transmission, and distribution of electric energy, based on sound technical and economic principles, without profit motives but with only the end objective of obtaining at a minimum cost the best service for the general interest."

Slow Start . . . In its early years, the commission had practically no operating funds. In 1939, with only $800,000 to work with, it added a pitiful 405 kw to the country's capacity at



WORLD BANK loan financed 106,000-kw Ixtapatango plant . . .



. . . in government's "Sistema Hidroelectrico Miguel Aleman"

PENSTOCK is part of Santa Barbara Station in the Aleman System

that time of nearly 900,000 kw. In 1940 only 1,026 out of Mexico's 114,945 towns were served with electricity. Over the years, however, the commission has obtained larger and larger budgetary allowances from the government, until last year it had $32 million to spend. Its installed capacity rose from 2.9% in 1946 to 13.2% last year. With 542,651 kw presently under construction, it will eventually be producing 30 to 40% of total output.

What gave the commission a chance to step in and build relatively large power projects was an impasse private companies reached with the government over consumer rates. The government, which must approve all rate increases, has been reluctant to give them to the private companies. As labor costs rose along with other expenses, the private utilities began to feel the pinch. Each of the three big companies decided on a different approach to the problem.

Sat Tight . . . Monterrey Light & Power, a Canadian company, refused to put in badly needed new capacity until they got a re-adjustment of rates. They rejected an increase they felt inadequate and sat tight, making no move to help out the desperately short Monterrey industrialists.

Net result was that the industrialists, a vociferous group, went screaming to the government. The power commission jumped at the chance. It sent emergency crews to Monterrey and aims to finish a 15,000-kw public power plant there in record time.

American & Foreign Power Co. with 16 wholly owned power companies in Mexico, is noted for its astuteness in getting along with difficult Latin American governments. It has tried to be more cooperative, but it also put aside plans for added capacity because of the rate question. Here, too, the government has stepped in. A drastic power shortage developed in Chihuahua, part of American & Foreign's service area, shutting down mines and cutting off the flow of minerals badly needed in the U. S. So now the commission is working day and night to complete a 45,000-kw thermal plant there. Meantime, it has rented a 10,000-kw power train

from the U. S. Navy to keep the mines going temporarily.

Enter Messerschmidt . . . A third approach, one hotly debated in the Mexican power industry, was taken by Mexican Light & Power, largest single electric company in the country. Though Canadian controlled, it is actively headed by a U. S. citizen, George Messerschmidt, former ambassador to Argentina. Messerschmidt came to Mexico in 1948 and, through his diplomatic prestige, immediately got together with top Mexican officials.

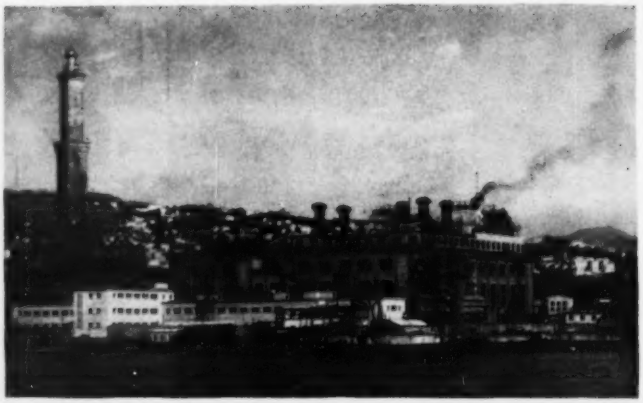
He and the Federal Electricity Commission decided Mexico City's 3 million population needed a minimum of 250,000 kw of new capacity by 1954 to meet industrial and metropolitan expansion. Messerschmidt offered to come in with 111,600 kw of new construction provided the government would assure him Mexlight would not be expropriated and give him rate increases as conditions justified. The commission under the '48 agreement would build an additional 133,050 kw of capacity in the area, and sell the power to Messerschmidt.

The plan has largely gone through —Messerschmidt has all but finished his construction, and received two substantial rate increases in return. Industry observers are watching closely to see whether Messerschmidt's gamble will continue to pay off.

Despite the public power-private power feud, facilities in Mexico have expanded considerably since the war, and the country now has an installed capacity of about 1,350,000 kw. Still, industrial and residential expansion keeps pushing ahead of power expansion. Whether supply will be able to keep up with demand will depend largely on the extent construction of new capacity continues to be slowed down by the political battle.

Heads Turkish Dam Work

Thompson-Starrett Co, Inc, New York, will head a group that will construct an $11-million dam on the Sakaria River in Turkey. The dam is the first phase of the $35-million Sariyar hydroelectric project being financed by Economic Cooperation Administration funds. The dam is scheduled for completion in 1954. The initial two turbines designed for the dam will have a capacity of 60,000 kw. Two more units and grid will make capacity 350,000 kw.



CONCENTER STATION of Societa Edison, Genoa, Italy, has increased its capacity to 110,000 kw with the aid of the first Marshall Plan-financed unit to come on the line in Europe. Lanterna di Genoa, a lighthouse built before the time of Columbus, stands at the left

U. S. Aid Makes Genoa Unit Hum

Foreign aid planners stuck a feather in their caps recently as the first Marshall Plan-financed new electric project began humming in Genoa, Italy.

ECA Granted Counterpart Funds . . . The 60,000-kw thermal unit was constructed by Societa Edison Electric Power with the aid of some $6 million in counterpart funds granted by the Economic Cooperation Administration to the Italian government. The project was officially approved by ECA in April of 1949. The agency granted funds for the purchase of modern high-pressure equipment from manufacturing companies in the United States. The company will repay the Italian government in lire over a 15-year period.

Second Unit Under Construction . . . A second 60,000-kw unit at the Genoa plant is also under construction with the aid of U. S. funds, and is scheduled to begin operation by April of this year.

Gibbs & Hill, Inc, consulting engineers of New York, supervised the design and construction of the plant. The consulting engineers trained construction workers at the plant site in order that the plant would be built in accordance with American specifications.

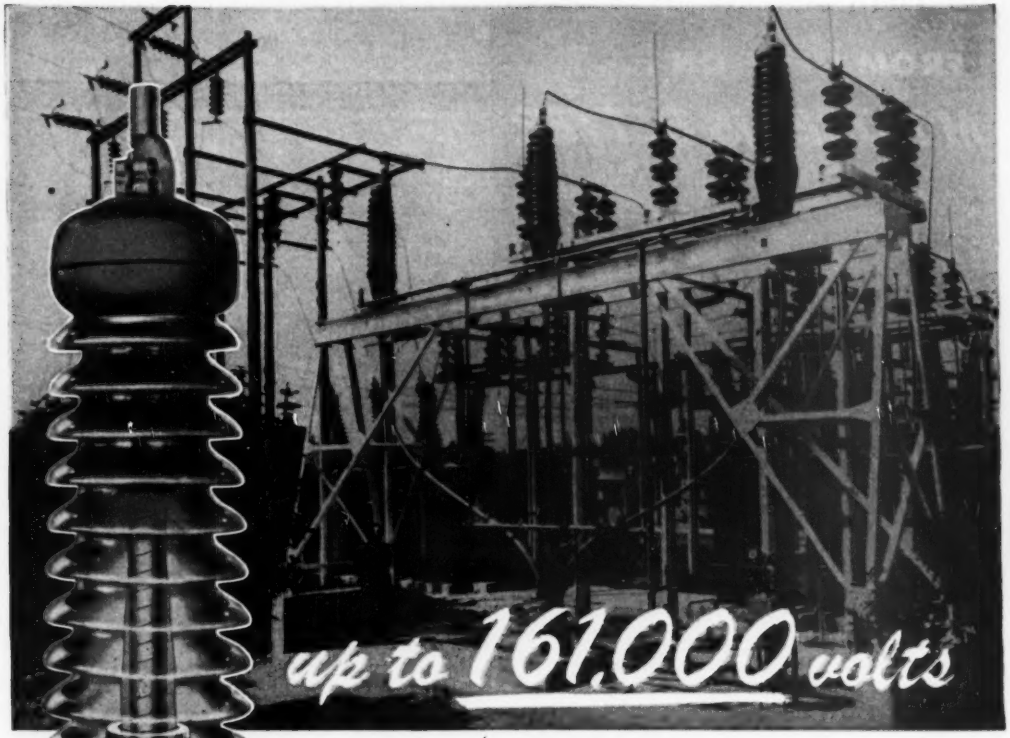
Italian operators for the plant were trained in the United States by the following utilities: Commonwealth Edison Co, Detroit Edison Co, Cleveland Electric Illuminating Co, Dayton Power & Light Co, United Illuminating Co, Rochester Gas & Electric Co, Long Island Lighting Co, and Metropolitan Edison Co. Dr Mario Piccagli of Societa Edison acted in the capacity of coordinator of the training program.

School Authorities Ask for Underground Lines

A movement has been started in Sacramento, Calif., to put power lines underground in the vicinity of schools. School authorities suggested this after a 13-year old youngster was electrocuted when he came in contact with a high-voltage line near a school ground. He had been playing on the school ground and climbed a power pole to release a model airplane which became stuck in the wires.

After the tragedy, James E. McCaffrey, general manager and chief engineer of the Sacramento Municipal Utility District, which has 70,000 power poles, most of them carrying high voltage circuits, suggested a program of education to point out to youngsters and adults the dangers of getting too close to electric lines.

Electric utilities all over the United States, he stated, publish warnings each spring to keep kites away from electric power lines. This warning, McCaffrey said, should be emphasized as meaning every day of the year.



HIGH PRESSURE...OIL FILLED
POTHEADS by G&W

Proper treatment of mechanical and electrical stresses permit this simple G & W design. Full 200 pound pipe line oil pressure is retained by the relatively small bore porcelain shell. Top and bottom fittings are fabricated, nonmagnetic, stainless steel—sealed by a minimum of gasketed joints.

Stress relief cone, supplemented by porcelain stress control tube, makes efficient use of the internal diameter and length of porcelain shell—and reduces the amount of installation labor.

Phantom view shows G & W type "ATA" 161 kv. pothead. Background installation shows G & W type "ATA" 115 kv. potheads.

For further data, drawings and prices, send us a complete description of your cable.

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Cable terminating, connecting and sectionalizing devices
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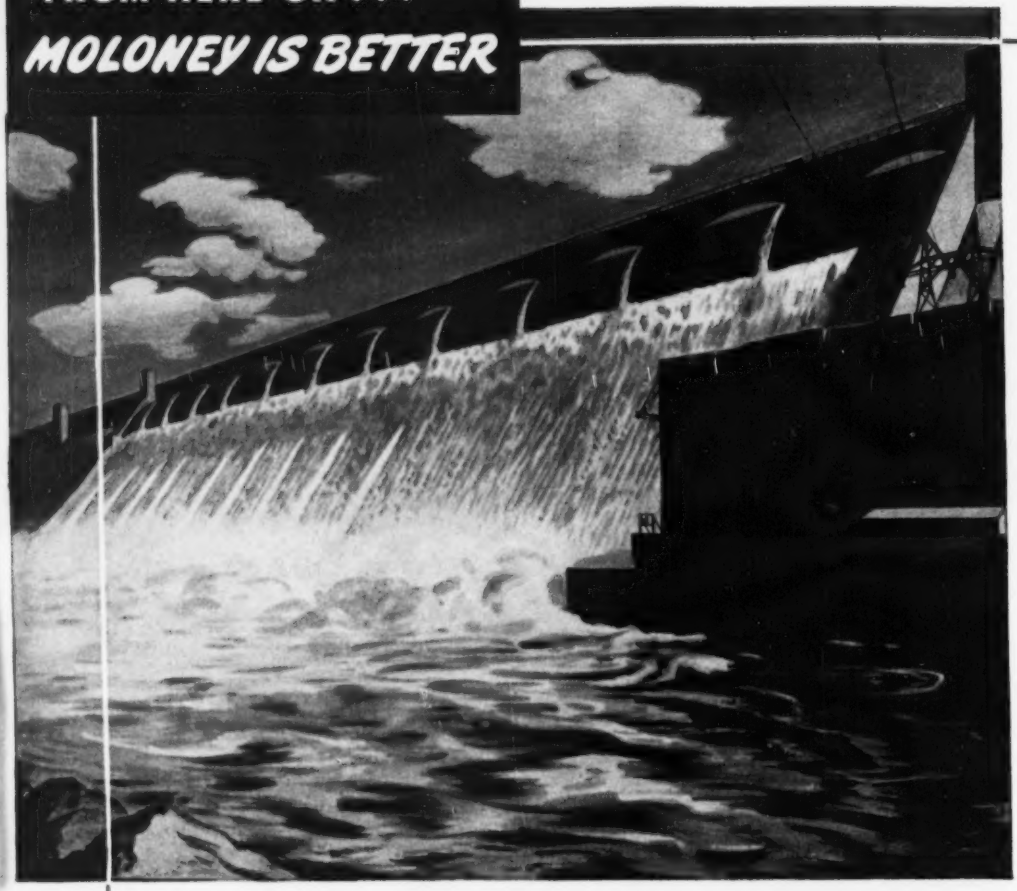
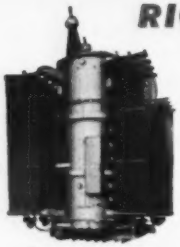
FROM HERE ON . . .

MOLONEY IS BETTER



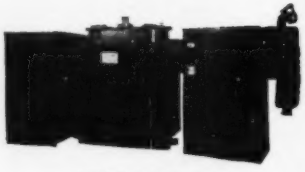
RIGHT DOWN THE LINE . . .



Power Transformers

Load Ratio Control Transformers

Feeder Voltage Regulators and Regulating Transformers



Load Center Unit Substations*

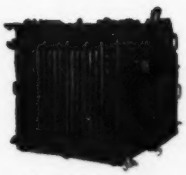
*Indoor and outdoor type

WHEN electrical energy is generated, the utility has the problem of delivering it to the consumer. Efficient transmission and distribution of this energy is an important consideration. To this end Moloney has devoted more than half a century in engineering, research, design and fabrication of better transformers. Moloney's vast facilities are at your disposal to help you develop and expand your system... efficiently! Moloney equipment will give better performance with greater reliability and with less maintenance expense... for a longer period of time. That is why we say that "from here on... *Moloney is better... right down the line.*"

MOLONEY ELECTRIC COMPANY

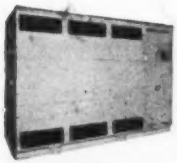
Manufacturers of Power Transformers • Distribution Transformers • Load Ratio Control Transformers • Step Voltage Regulators • Unit Substations

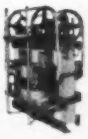
SALES OFFICES IN ALL PRINCIPAL CITIES
FACTORIES AT ST. LOUIS, MO. AND TORONTO, ONT., CANADA


Network Transformers

HiperCore Distribution Transformers**

Askarel Transformers

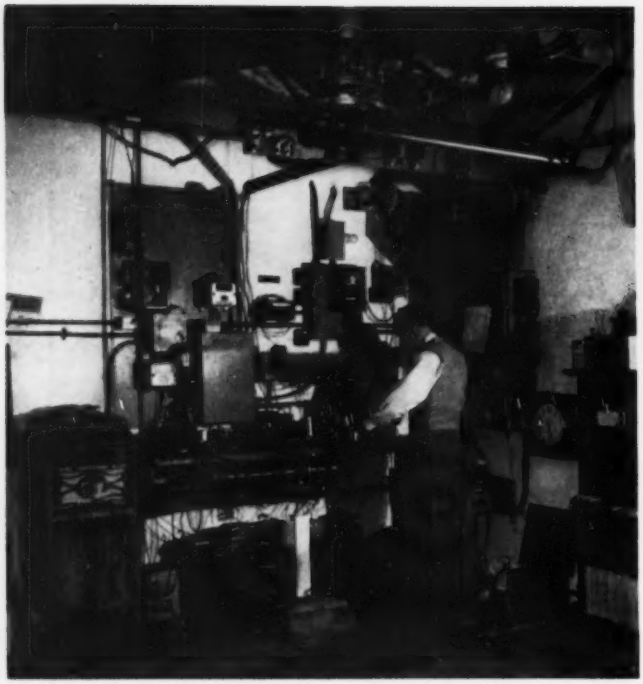

Air Cooled Transformers


Constant Current Transformers†

Subway Transformers

** Conventional and CSP Types

† Packaged Units and Standard Types



NERVE CENTER for Ted Blakeslee's electrical dream house in Los Angeles is located in the garage. Storage batteries provide emergency power for night lights and burglar alarm

SPEAKER-MICROPHONE at the Blakeslee front door is connected with kitchen and patio

Postman Doesn't Have to Ring Twice

Door chimes that play an encore are among electrical marvels this Los Angeles engineer has installed in his home

The outside looks conventional—and, except for an abundance of pushbuttons, so does the inside.

But the Blakeslee house in Los Angeles is far from conventional. An awning is likely to swing down seemingly without provocation or a lawn sprinkler squirt into action without warning. The voice of an unseen person is likely to invite a visitor inside or bid a salesman to peddle his wares elsewhere.

The Life of a Power Engineer . . . The Blakeslee house stands apart from others in the neighborhood because it is wired for comfort and convenience. Ted M. Blakeslee, assistant electrical engineer in charge of operations for the Los Angeles Department of Water and Power, has combined his knowledge of electricity, electronics, and mechanics with a lot of hard work to turn his six-room, two-story home into a marvel of modern engineering.

The postman doesn't have to ring twice here. He touches the button at the front door once, the chimes sound once; five seconds later they sound three times, without another push. Leaning on the button to sound them again will lead to frustration—a lockout relay prevents them from going off again.

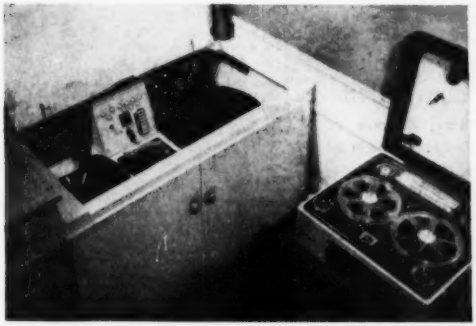
To cope with Southern California's alleged overabundance of sun, Blakeslee has installed an automatic sprinkler that measures moisture content of the ground at 1:00 a.m. every day. If it is below minimum necessary, sprinklers come on for five minutes and continue to do so for five minutes every hour until not needed or until 5:00 a.m. A lawn edger, consisting of 25 ft of resistance wire strung along the sidewalk, is combined with the sprinkler system and uses 1,600 w to edge the lawn.

Even the Gimmicks Have Gimmicks . . . Blakeslee has thought of just about everything to make his labor-saving equipment work flawlessly. Supersonic control operates the garage door only after two short 20-kc blasts from a whistle to prevent false operation from squealing brakes or other random noises. The garage doors close automatically after the car goes out. The mechanism which operates the garage door consists of a converted aircraft motor.

Never satisfied with what he has accomplished, Blakeslee is now looking forward to the installation of a dial system throughout the house which would take over the pushbutton functions.

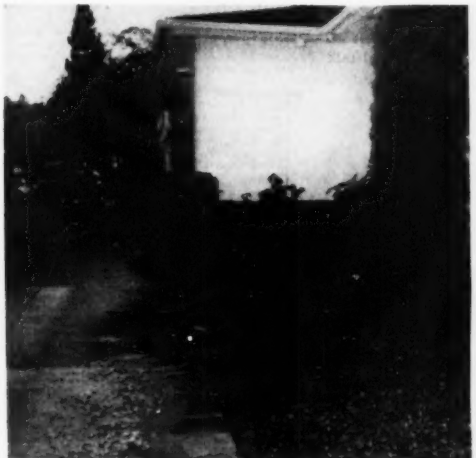
LOW VOLTAGE LIGHTING CONTROL enables Mrs. Blakeslee to operate five kitchen lights individually or as one from three different panels

DOLL HOUSE of the Blakeslee's daughter Lynn is equipped with electric lights and tiny console radio which plays from her own radio



SOUND EQUIPMENT includes 33, 45, and 78 rpm record players and two-speed tape recorder which can be operated from other locations

PATIO KITCHEN is equipped with built-in electric range and oven, intercom to kitchen and front door, light and sound control panel



ELECTRIC LAWN EDGER consists of 25 ft of resistance wire strung along sidewalk. Automatic sprinkler system waters lawn when necessary

AUTOMATIC AWNING is controlled by home-made **black body** and motor operated. It raises and lowers as sun appears or disappears

Control Room Lighting Talk...

. . . is planned for conference to be held by the Engineering and Operating Section of PCEA at Fresno, Calif.

The trend of lighting facilities for large modern steam plant control rooms using fluorescent lighting and luminous ceilings is slated for discussion at the Pacific Coast Electrical Association's Engineering and Operating Section conference scheduled for March 20-21 at Hotel Californian, Fresno, Calif.

Discussion leaders of the engineering design group who will handle the topic will be Ken Knopf, Bechtel Corp, and E. Nilsson, Pacific Gas & Electric Co.

Discourse on Design . . . The Engineering Design Group's program also includes a discourse on fundamental design principles to be applied to the design of outdoor steam generating plants. Discussion leaders will be Ben Schmid and E. G. Gothberg, Pacific G&E; I. R. Caraco, Bechtel Corp; and Ray Wilcox, Southern California Edison Co.

Talks on turbines, penstock valves, and gates have been planned by the hydro generation group. Gains in turbine efficiency obtained during 50 to 60 cycle conversion at Big Creek will be covered by A. C. Werden, Southern California Edison. A session on penstock valves, headworks, and tailrace gates will be conducted by T. J. Corwin, Pacific G&E; and Paul Yelton, California Electric Power Co. D. P. Dinapoli, Pacific G&E will direct a talk on Bear River multi-jet turbine installation.

The program prepared by the overhead transmission and distribution group will include a round table discussion. Among the topics to be discussed will be: (1) ground fault protection on ungrounded distribution lines and on grounded systems having very high fault resistance in dry countries, and (2) unbalanced feeder loads and their effect on single phase regulator operations.

Protective coatings for salt water service will be given attention by the steam generation group. The discussion leader will be E. R. Prout, San Diego Gas & Electric Co. This discussion will cover the experiences of various companies in the use of special paints, rubbers or plastics for the protection from corrosion and erosion of salt water equipment.

Guest speaker will be Dr Lawrence R. Hafstad, director of reactor development, U. S. Atomic Energy Commission. His topic will be "Atomic Energy as Applied to Power Generation."

Alf Hansen and P. H. Adams are chairman and vice chairman, respectively, of the conference.

Depa Director to Speak at Oklahoma Convention

Donald R. McClung, director of Materials and Equipment Division of Defense Electric Power Administration, will speak at the 34th annual convention of the Oklahoma Utilities Association, to be held March 27-28 at the Hotel Biltmore, Oklahoma City. He will talk about material problems facing the utility industry during 1952.

Among the other speakers will be D. A. Hulcy, president, Lone Star Gas Co, Dallas, Tex., and president of the United States Chamber of Commerce. He will discuss the free enterprise system. Walker L. Cisler, president, Detroit Edison Co, will talk about utility systems in Western Europe.

Texas Parley to Hear About Sea's Resources

"Resources from the Sea" will be discussed by Dr Dale F. Leipper, head of the department of Oceanography, Agricultural & Mechanical College of Texas, at the fifth annual Conference for Protective Relay Engineers. The conference, which is sponsored by Texas A&M, will be held March 24-26 at College Station.

The program will include discussions on generator behavior under unbalanced fault conditions, a method of testing relays on a transmission line terminal, and standardization problems in protective relaying.

CALENDAR

Pacific Coast Electrical Association
Engineering-Operating Section Conference, Hotel Californian, Fresno, Calif., March 20-21; Administrative Services Section Conference, Hollywood-Roosevelt Hotel, Hollywood, Calif., April 17-18; Business Development Section Conference, Hotel Huntington, Pasadena, Calif., April 24-25.

★Public Utilities Advertising Association
Region 5 Meeting, Vinoy Park Hotel, St. Petersburg, Fla., March 21-22; Annual Convention, Hotel Radisson, Minneapolis, Minn., May 8-9.

A&M College of Texas
Annual Conference for Protective Relay Engineers, Department of Electrical Engineering, College Station, Tex., March 24-26.

American Society of Mechanical Engineers
Spring Meeting, University of Washington, Seattle, March 24-26; Semi-annual Meeting, Sheraton-Gibson Hotel, Cincinnati, Ohio, June 15-19.

American Power Conference
(Formerly Midwest Power Conference)
Sherman Hotel, Chicago, March 26-28.

Oklahoma Utilities Association
Annual Convention, Biltmore Hotel, Oklahoma City, March 27-28.

Edison Electric Institute
18th Annual Sales Conference, Edgewater Beach Hotel, Chicago, March 31-April 3; Electrical Equipment-Prime Movers Committees, Edgewater Beach Hotel, Chicago, May 5-6; Association of Edison Illuminating Companies Meter-Service Committees, Edgewater Beach Hotel, Chicago, May 5-7; Transmission-Distribution Committee, Edgewater Beach Hotel, Chicago, May 6-7; Hydraulic Power Committee, Edgewater Beach Hotel, Chicago, May 6-7; Purchasing Stores Committee, Roosevelt Hotel, New Orleans, La., May 11-14.

Illuminating Engineering Society
Southwestern Regional Conference, Hotel Tulsa Tulsa, Okla., April 6-8; Southern Regional Conference, Hermitage Hotel, Nashville, Tenn., April 20-22; Canadian National Conference Hotel General Brock, Niagara Falls, Ontario Can., April 30-May 2; Great Lakes Regional Conference, Hotel Statler, Cleveland, Ohio, May 5-6; East Central Regional Conference, Webster Hall Hotel, Pittsburgh, Pa., May 22-23; Northeastern Regional Conference, Hotel Preston Swampscott, Mass., June 19-20.

American Institute of Electrical Engineers
Southwest District Meeting, Jefferson Hotel, St Louis, Mo., April 15-17; Welding Conference Rackham Memorial Bldg., Detroit, Mich., April 16-18; arranged jointly by American Welding Society, Detroit Section, and Industrial Electrical Engineers Society, Detroit; Northeast District Meeting, Arlington Hotel, Binghamton, N. Y., April 30-May 2; Summer General Meeting, Hotel Nicollet, Minneapolis, Minn., June 23-27.

★Pennsylvania Electric Association
Spring Meeting Meter Committee, Hotel Yorktowne, York, Pa., April 17-18; Communications Committee, Americus Hotel, Allentown, Pa., May 1-2; Spring Meeting, Relay Committee, Lawrence Hotel, Erie, Pa., May 8-9; Electrical Equipment Committee, Hotel Roosevelt, Pittsburgh, Pa., May 15-16.

Southeastern Electric Exchange
Annual Conference, Boca Raton Hotel, Boca Raton, Fla., April 21-23.

American Public Power Association
Spring Convention, Hotel Olympic, Seattle, April 29-May 1. Joint Meeting with Northwestern Public Power Association, April 28.

National Electrical Manufacturers Association
4th International Lighting Exposition-Conference, Industrial-Commercial Lighting Equipment Section, Cleveland Auditorium, Cleveland, May 6-9.

★Northwest Electric Light & Power Association
Engineering-Operation Section, Rainbow Hotel, Great Falls, Mont., May 7-9; Business Development Section, Chinook Hotel, Yakima, Wash., May 12-14; Personnel Section, Vancouver Hotel, Vancouver, B. C., May 19-21; Accounting-Business Practice Section, Medford Hotel, Medford, Ore., May 22-23.

American Society for Testing Materials
Annual Meeting, Hotels Statler-New Yorker, New York, June 23-27.

★ Addition this week.

SAVE WITH Power Transformers THAT COMBINE ASA STANDARDS

...AND Westinghouse Quality!

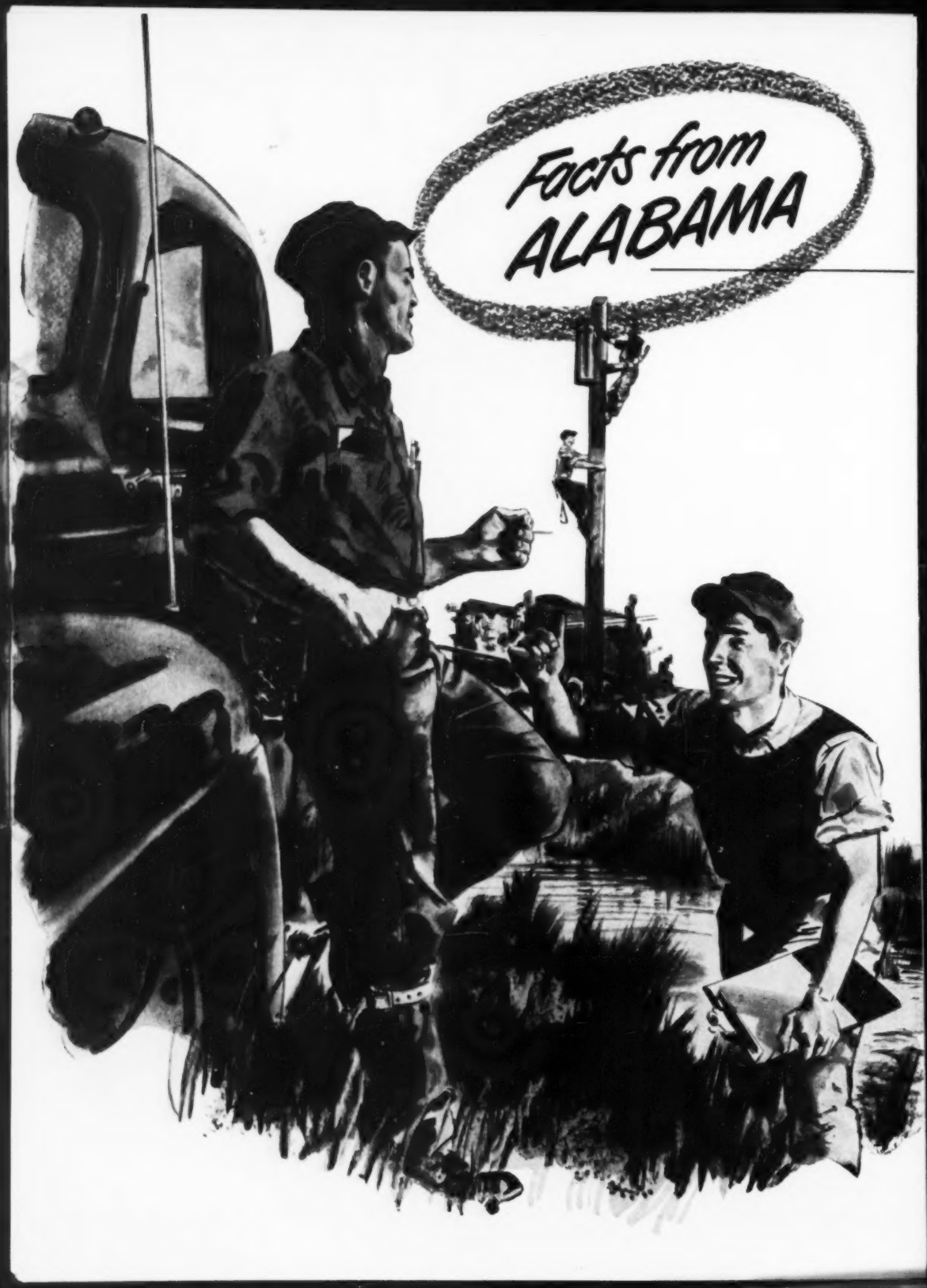
For the first time, the industry has agreed on Standards for power transformers. Westinghouse is ready *now* to supply transformers that meet these Standards.

There are substantial savings when you use Westinghouse *standardized* design transformers.

1. A *minimum* reduction of 8% in capital investment.
2. Superior quality that insures reliability of service and a minimum of operating expense.

Your Westinghouse representative will be glad to discuss the application of *standardized* transformers to your system. Call him today, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-70617

YOU CAN BE SURE... IF IT'S
Westinghouse
POWER
TRANSFORMERS


Facts from
ALABAMA

"'CSP' Transformers save $75.00 per pole on joint-use power line"

"$75.00 each per pole change. $4.00 each in cost of pole. $8.45 per transformer installed. These are the savings we obtained by using 'CSP' Transformers", says an Alabama Utility.

"Here's how we figured it:

"Ordinarily we use 35-foot poles on rural lines. While the Phone Co. was negotiating with us for joint use, we ran into a clearance problem. Conventional transformers would then require 40-foot heights. This meant new poles with change-out cost of approximately $75.00 each. However, 'CSP' Transformers afforded ample clearance on 35-foot poles, avoided the changing job, provided savings in pole cost on the proposed joint lines."

Also installation costs were reduced from $22.45 to $14.00 per transformer.

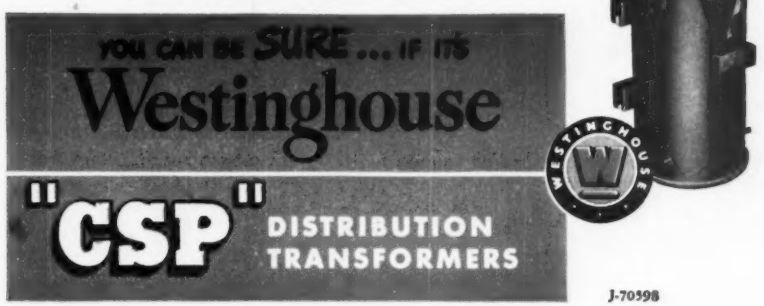
Installation and maintenance costs for Westinghouse "CSP" (Completely Self-Protecting) Transformers are always lower, because complete protective equipment is built in, not separately mounted. A two-year survey of Electric Light and Power Companies shows the following:

NATIONAL AVERAGES

	"CSP"	Conventional
Installation Cost	$13.87	$24.74
Burn-out Rate	0.257%	1.005%
Fuse Outages	None	5.64% @ $6.52 per outage
Load Checks	Automatic	12.8%
Breaker Reset	1.02%	None

If you'd like to check your own costs against these national averages, ask your Westinghouse representative for Booklet B-4247-B, "Transformer Costs and Their Relation to Profits". Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

"CSP" devices . . . originated and patented by Westinghouse



J-70598

EASY does it

Unsolicited letters from many of Delta-Star's customers prove that Delta-Star's close attention to details in designing and assembling metal-enclosed bus structures has paid off in reducing cost of installation.

This is true because all details are carefully checked by factory assembly and tests before shipment. The entire bus and enclosures are carefully marked to assure accurate alignment and ease in locating component parts. Being factory engineered and tested to meet specific requirements both electrically as well as structurally a minimum of set-up, fitting, checking, and testing is required.

Delta-Star designs and builds isolated-phase, metal-enclosed busses for voltages to 23,000V and current ratings to 7,000 amperes. Segregated and non-segregated-phase busses are also manufactured.

PROTECT YOUR INVESTMENT

Although metal-enclosed bus runs are now used extensively for generator connections, there are many other places where it is necessary to tie in large blocks of power at comparatively low voltages involving heavy ampere capacities. Here DELTA-STAR Metal enclosed buses can be used advantageously because of their low installation costs.

When you want the best in high voltage switching equipment, specify Delta Star

DELTA-STAR ELECTRIC COMPANY

DIVISION OF H. K. PORTER COMPANY, INC.

2437 Fulton Street • Chicago 12, Illinois

DISTRICT OFFICES IN PRINCIPAL CITIES

NEWS ABOUT PEOPLE

Boston Edison Reorganizes

Utility establishes two new operating groups and appoints Hugo Wellington vice president of the company

In the most extensive reorganization in its history, Boston Edison Co recently established two new operating organizations. One of these new groups, the Engineering and Construction Organization, will be directed by John T. Ward, vice president of engineering and construction.

Named Vice President . . . The other, the Steam and Electric Operations Organization, will be headed by Hugo W. H. Wellington, recently promoted to vice president of steam and electric operations. He had been assistant vice president in the engineering and operating organization since last year and has been with the company for about 34 years.

Vice Pres Thomas H. Haines has been assigned to the executive staff with duties relating to both of the new organizations.

Oscar B. Benson will serve as Wellington's assistant and assistant vice president of the Steam and Electric Operations Organization. Other assistant vice presidents in that organization are E. C. Rue and H. L. R. Kurth. Kurth is superintendent of the production department and the newly set up system operating department with George U. Parks as assistant superintendent of the former department. Rue remains as superintendent of the transmission and distribution department with James F. Archibald and Douglas F. Tulloch as assistant superintendents.

Within the production department, A. T. Haendler has been named chief of electrical operations in the electrical section. P. T. Butterworth has been made assistant superintendent and chief system operator in the system operating department and also acting head of the distribution dispatching division.

Production Department Changes . . . Other changes in the production department include the appointments of C. V. Reeves as head of the system dispatching division and R. W. Nuttle, as assistant division head. A. T. Barker becomes head of the newly established maintenance engineering division of the electrical section and S. MacLeod is head of the new maintenance engineering division of the mechanical section.

In the transmission and distribution department, A. B. Jones has been named head of the technical service division. W. A. Engstrand is head of the permits and licenses division, formerly the rights of way division.

Chester A. Corney has been designated as assistant vice president of the Engineering and Construction Organization and will also serve as superintendent of the Engineering and Construction department.

Assistant superintendent of the department is G. A. Orrok. He will be head of the construction and mechanical engineering section of the department.

H. W. H. WELLINGTON

C. A. Wells was appointed head of the general station construction section with M. O. Bolton named as assistant as well as head of the inspection division, and R. A. Nickerson becomes assistant division head.

Section Name Changed . . . The electrical section now becomes the electrical system planning and engineering section with C. W. McGill as head and the transmission and station division, with E. A. Church as head, is now the system planning and development division. E. E. DeNormandie heads up the customer service division with W. W. Edson and L. I. Weed continuing as heads of the station electrical design and distribution division respectively.

C. F. Avila was named head of the service section and will serve as head of the technical methods division.

Roy G. Rincliffe Heads Philadelphia Electric Co

(See Front Cover)

Roy G. Rincliffe has assumed his duties as president of the Philadelphia Electric Co (EW, March 3, p 5). As successor to H. B. Bryans, he will head the nation's seventh biggest utility in number of customers.

Close to 29 years of service with the company have given him a wide understanding of its operations and problems, including those of its gas system. He started with the company as an engineering assistant at Chester, Pa., in 1923. Before becoming superintendent of gas manufacturing in 1931, he held various positions which gave him considerable practical training. Seven years later he was made purchasing agent, a position which he held until 1941. Then he was transferred to the Electrical Department as manager of electric stations.

Rincliffe became vice president in charge of electric operations in 1945 and executive vice president, the position he held until a few weeks ago, in 1950.

He is vice president of the Pennsylvania Electric Association. He also holds memberships in the American Institute of Electrical Engineers and the American Society of Mechanical Engineers. His directorships include the Electrical Association of Philadelphia and the Philadelphia National Bank.

A native of Sandusky, Ohio, the new Philadelphia Electric Co president was educated at Yale University and the Massachusetts Institute of Technology.

GE Presents '51 Coffin Award to 27 Employees

Twenty-seven employees of General Electric Co and its affiliated companies have received the Charles A. Coffin award for work of outstanding merit during 1951.

The Coffin award is General Electric's highest honor to its employees and is recognized by industry as a unique way of honoring employees for outstanding accomplishments beyond their normal line of work. Simultaneous ceremonies were held in 11 cities throughout the country, where GE plants or offices are located, to honor the recipients.

The winners included 14 engineers, six manufacturing supervisors, two workmen, one laboratory assistant, one clerk, one engineering assistant, one draftsman, and one auditor.

The award was named for Charles A. Coffin, the first president of General Electric and one of the founders.

F. G. Hawthorne has been named secretary and treasurer of Weston Electrical Instrument Corp, Newark, N. J. Hawthorne joined Weston in 1937 as assistant comptroller.

Ralph Fackler, superintendent of system operations for the Indiana & Michigan Electric Co who has been on loan to the federal government for the last nine months, has resumed his post with I&M. Fackler served as regional engineer with the Defense Electric Power Administration in Washington. Edward S. Miller, I&M's assistant superintendent of system operations, has been acting superintendent during Fackler's absence.

William C. Handlan has assumed the duties of manager of the Monongahela Power Co's territorial development department. He succeeds **E. B. Smith** who has retired. Handlan will continue as head of the company's publicity and advertising, a post he has held since joining Monongahela Power in 1948. Smith has served the utility in an executive capacity for 35 years.

A. J. Maranville has been appointed commercial manager for the southern district of Connecticut Valley Electric Co at Claremont, N. H. He succeeds the late W. Otis Minard. **Stuart W. Hodgkins,** commercial manager of the Springfield division of Central Vermont Public Service Corp, has assumed commercial management of the east-central section of Central Vermont's service area. Central Vermont PS is the parent company of Connecticut Valley Electric.

Drumm New Chairman of Better Light Bureau

S. L. Drumm, vice president in charge of sales, New Orleans Public Service, Inc, has been elected chairman of the Better Light Better Sight Bureau. Drumm succeeds Ralph P. Wagner, commercial manager, eastern

S. L. DRUMM

division, Niagara Mohawk Power Corp, Albany, N. Y., who has been chairman of the bureau since 1948.

Drumm has been associated with the New Orleans utility in various capacities for 28 years.

Widely known in the electrical industry, he has served on several committees of the Edison Electric Institute and is the immediate past chairman of the General Sales Section, Southeastern Electric Exchange.

OBITUARY

Chester N. Chubb

Chester N. Chubb, 74, who retired as president of the United Light & Railways Co in 1949, died Feb. 9 at San Antonio, Tex.

Chubb entered the utility field in 1902 when he joined United Gas Improvement Co, Philadelphia. He spent 15 years with that company and then became affiliated with United Light & Power Co. In 1925 he left United L&P to become president of Iowa-Nebraska Light & Power Co, remaining in that position four years.

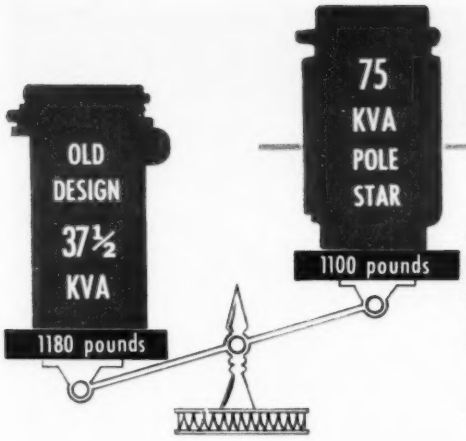
He then spent two years in Europe as a representative for an American utility syndicate. Upon his return to this country in 1931 he became a vice president of the American Light & Traction Co, Chicago. He was president of the San Antonio (Tex.) Public Service Co, an American Light & Traction subsidiary, from 1935 until the company was purchased by the City of San Antonio in 1942. However, Chubb continued as vice president of American L&T until 1948 when he was elected president of United L&R and its subsidiary, Continental Gas & Electric Corp. At the time of his death, he was chairman of the board of United L&R.

Morris W. Kellogg, 79, founder and chairman of the board of M. W. Kellogg Co, died at New York Feb. 22. Kellogg started the company in 1901 as a small pipe fabricating shop in Jersey City, N. J., which led to pioneering in the fabrication of penstocks for the hydroelectric power industry. In late 1944, he arranged the sale of the company to Pullman Inc, becoming a director of the parent corporation. He continued as president of Kellogg until March, 1946.

Frank Stuart Smith, 88, retired rate consultant of Pennsylvania Power & Light Co, died Feb. 29 at Bethlehem, Pa. Early in his career Smith was associated with Westinghouse Electric Corp, becoming vice president in 1903. He joined Lehigh Navigation Electric Co in 1910. When the Lehigh company was merged into the Pennsylvania P&L in 1920, he became commercial manager. In 1932 he became manager of the rates and contracts department and in 1940 became rate consultant, retiring in 1941.

Perry Joseph Bott, 54, safety director for Arkansas Power & Light Co, died Feb. 26 at Little Rock. Bott joined Arkansas P&L in 1920.

Edward B. Hyde, 85, who retired from the law department of Consolidated Edison Co in 1937 died Feb. 28 at Flushing, N. Y. He was commercial manager of the New Amsterdam Gas Co before its merger with Consolidated Edison in 1932.



More KVA per pound with *Pennsylvania* POLE STAR TRANSFORMERS *because*

The 100 Kva Pole Star weighs less than Pennsylvania's old design, 75 Kva transformer. The 75 Kva Pole Star weighs less than the former 50 Kva (and even less than the old 37½ Kva transformer). The 50 Kva Pole Star weighs less than the former 37½ Kva, and so on down the line . . . to the smallest Kva sizes.

THIS MEANS you get more Kva per pound when you install Pole Stars on your lines. It further means that when you must increase the size of your transformers to carry heavier loads, you may be able to replace your present transformers with larger Kva-rated Pole Stars, with little or no increase in weight. This may save you the expense of changing from Hanger mounting to Platform mounting, and it may eliminate the necessity of replacing existing poles with heavier poles.

POLE STARS are lighter....

Wound Core POLE STARS Cold Rolled Steel Cores			than old design Stacked Core Pennsylvania Transformers Hot Rolled Steel Cores
	3 Kva	— 43 lbs. lighter	
	5 Kva	— 65 lbs. lighter	
	10 Kva	— 110 lbs. lighter	
	15 Kva	— 150 lbs. lighter	
	25 Kva	— 220 lbs. lighter	
	37½ Kva	— 470 lbs. lighter	
	50 Kva	— 445 lbs. lighter	
	75 Kva	— 405 lbs. lighter	
	100 Kva	— 785 lbs. lighter	

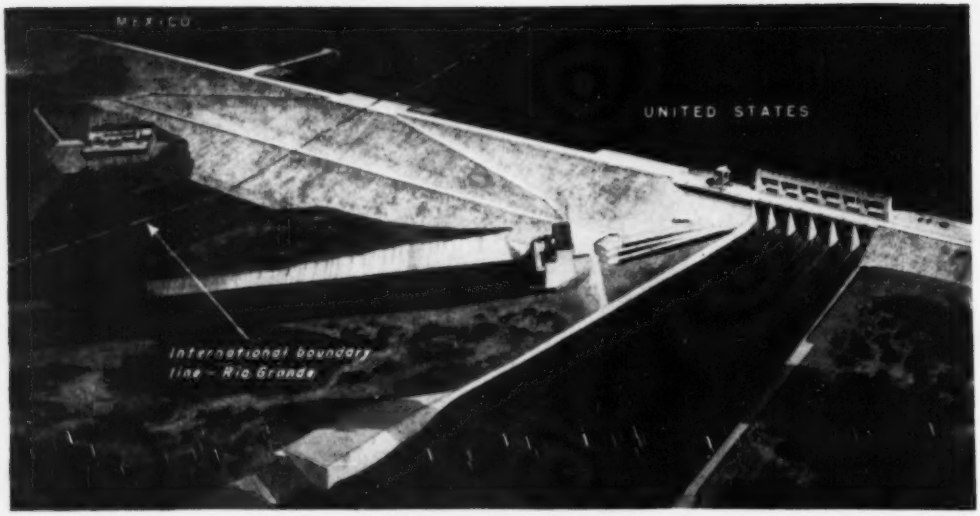
Let the **POLE STAR** be your guide . . .

Product Of Long Experience — **Safe Thrifty And Reliable**

Pennsylvania
TRANSFORMER COMPANY
CANONSBURG, PENNA.
Greater Pittsburgh District

50 Kva *Pole Star* with 2400 Volt side-issuing H. V. bushings.

10 Kva *Pole Star* with 15 Kv cover-mounted bushings.



FALCON DAM AND POWER PLANTS as visualized by the engineers. The Mexican plant is at the upper left of picture, the American at center right. The controlled spillway at the right has six 50 x 50-ft fixed wheel gates which can spill up to 456,000 sec ft in flood season

No Controversy Over Falcon Project

While storms rage over proposals to build power plants on St. Lawrence and Niagara Rivers, Mexico and United States are building two 31,500-kw stations on the Rio Grande

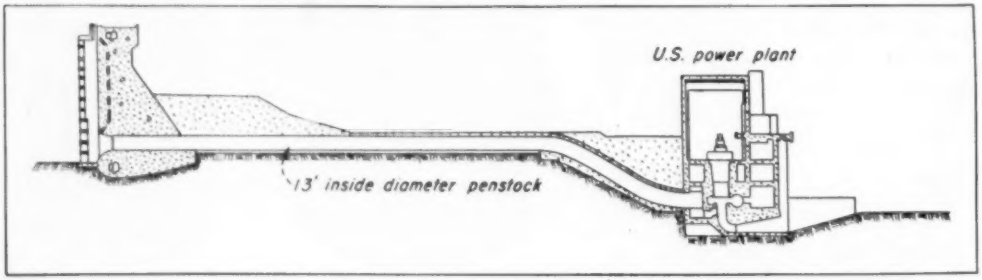
While a nationwide controversy rages over construction of power projects on rivers forming the nation's northern border, construction of the international Falcon power project is underway on the river that forms part of the southern boundary.

Of course, there is a big difference between conditions along the two borders. There are no competitors for the Rio Grande project as for those on the Niagara and St. Lawrence. There are no controversial navigation aspects. And the cost is infinitestimal in comparison with that of the northern projects.

The Falcon Project is being constructed under the Water Treaty of 1944 between Mexico and the United States. The treaty fixes and delimits the rights of the two countries to waters of the two principal international streams, the Rio Grande (below Fort Quitman) and the Colorado River, and provides for construction of works necessary for maximum conservation and use of the international waters.

On the Rio Grande the treaty provides for three international storage dams. These are to be built jointly by the two governments through their respective sections of the International Boundary and Water Commission. Under the treaty the lower one, Falcon, must be built first to conserve water flowing into the Gulf of Mexico.

The project will have four functions: conservation, flood control, recreation, and power. The dam will make all functions possible. It is located several miles upstream from Roma, Texas, and Miguel Aleman, Mexico. The dam is of rolled earthfill construction with an axial length of some 26,000 ft, 10,000 in the United States and 16,000 in Mexico. It will be 150 ft high with a maximum



UNITED STATES PLANT has 13-ft penstock for each of three water-wheel generators. In diagram at right

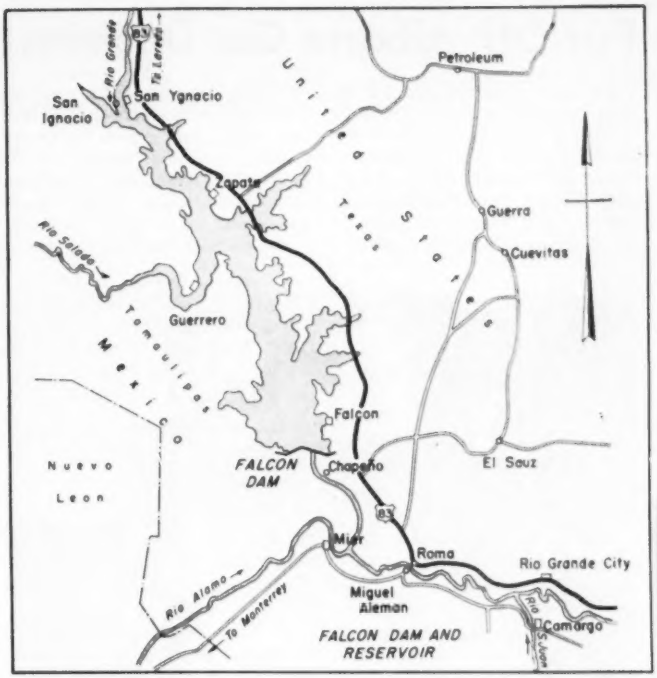
base width of 1,000 ft and a 35-ft crown. An asphalt roadway will be built on the crown.

A controlled spillway is located on the American side of the river about 1,400 ft from the channel. The spillway is a reinforced concrete structure surmounted by six 50 x 50-ft fixed wheel gates. The maximum design capacity of the spillway is 456,000 sec ft or nearly 2½ times greater than any flood in the last 50 years.

In addition separate outlet works are provided for each country. The United States outlet consists of a concrete gravity dam adjacent to the spillway in which there are three 13-ft penstocks. These will either feed the turbines or bypass water to the river below the dam. The Mexican outlet consists of a 22-ft penstock with the upper end located in a conventional-type tower structure. At the lower end the single penstock merges into a manifold section that will feed water into the turbines or bypass it.

Power Plants . . . The two identical power plants, one on each side of the river, are near the downstream toe of the dam. Each will contain three vertical-shaft, single-runner, Francis-type turbines. Each will develop 14,750 hp at a rated head of 100 ft and a speed of 163.6 rpm. The three 3-phase, 60-cycle, vertical waterwheel generators are rated at 10,500 kw, 6,900 v. Each plant will have a centralized control room with independent facilities. The two plants will be interconnected for transfer of energy.

It is estimated that the plants will generate annually about 200 million kwhr of prime energy and 50 million kwhr of secondary energy. Under the treaty all energy will be divided equally between the countries. But either country may export to the other any power not required for its own use.



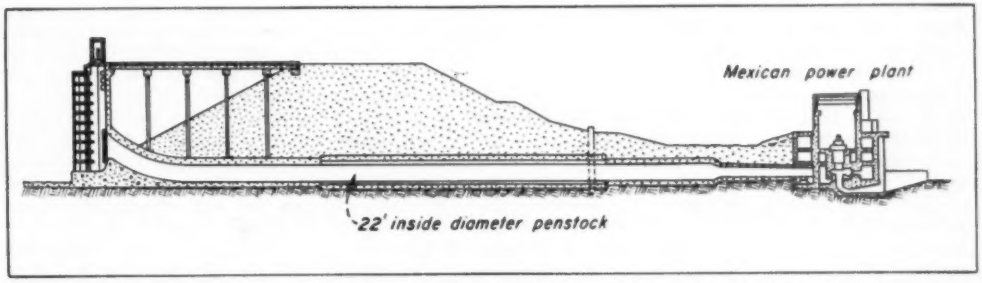
MAP shows the location of Falcon Project. It is likely that after road is built on crown of dam it will be interconnected with the highway systems of both Mexico and the U. S.

Conservation and Flood Control . . . In this region conservation of water is important. The conservation storage space is divided on the basis of 58.6% to the United States and 41.4% to Mexico. By eliminating floods the project will conserve water for all-year use.

The lake behind the reservoir will also provide boating, swimming, and fishing facilities. The commission will have control of the lake but will govern each side under the laws of the country in which it is located.

The project is to be completed by fall of 1953. The estimated cost is about $46 million exclusive of certain items to be borne separately by each government within its own territory. The $33.5-million dam cost is prorated between the two countries in proportion to the division of conservation storage space. The $12.5-million cost of the power plants will be split equally.

Congress will have to rule on who will get the power from the U. S. plant. The Bureau of Reclamation is a likely marketing agent. But there may be some utility companies interested. The Mexicans will send their power to Monterrey, 100 miles away.



MEXICAN PLANT has 22-ft penstock feeding into manifold which serves three units identical with U. S. machines

Put Off Alberta Gas Decision

The international struggle for Alberta's natural gas is now set for a showdown before May 15, with the Feb. 15 deadline on cancellations of natural gas contracts between Canadian producers, the Northwest Natural Gas Co, and Seattle and Portland distributors extended three months.

As originally drawn, the contracts would have been voided Feb. 15 unless Alberta had granted an export permit to Northwest Natural Gas Co by that date. Alberta authorities have indicated a decision on gas export permits will not be made until April.

The extension continues the "inside track" Northwest has in competition among pipeline companies seeking permits to export natural gas from Alberta, according to N. Henry Gellert, president of Seattle Gas Co.

Canadian companies, seeking to transmit the gas east, are competing with pipeline companies which want to bring it west. Four other firms are competing with Pacific Northwest Pipeline Corp and Northwest Natural Gas for export permits.

Actual export of gas is controlled by the Alberta government through its Petroleum and Natural Gas Conservation Board. Even when their approval is secured however, pipeline firms cannot go ahead without approval of the U. S. Federal Power Commission for construction of the line through United States' territory.

Baby Salmon in for a Rough Time

Little salmon head for the protection of the positive pole (left) when Dr Gerald B. Collins (right) of U. S. Fish & Wildlife Service gives them jolt of "square wave" electricity. The federal agency is conducting experiments with special equipment in an attempt to find a way to guide ocean-bound salmon safely around dam spillways and turbine tunnels.

Experiments of a different sort but with the same end will be conducted in British Columbia. Two hundred thousand salmon eggs will be taken from Cultus Lake fish hatcheries and the Skagit River to the Marblemount hatchery in Washington. This spring the fish will be released and allowed to proceed over the 265-ft power dam at Concrete, Wash. Other fish will be guided to the intake of the flumes and fed through the penstocks to the whirling turbines. Survivors from both routes will be collected and examined. Previous experiments have shown that a considerable portion of the small fry pushed over the dam and run through turbines escape with little damage other than a shaking up.

Proposed Overhead Line Opposed by Residents

Citizens in the Los Angeles suburb of Tarzana are vigorously protesting plans by Los Angeles Department of Water and Power to construct a 21-mile overhead transmission line. The municipal utility has instituted condemnation proceedings on 53 dwellings to obtain right of way for the line.

The local group, made up of some whose homes will be condemned and some owning property adjacent to the proposed line, is demanding that the line be put underground for at least part of the way. Samuel B. Morris, general manager of the department, has estimated that total cost would be $29 million if the line is put underground, compared with $11 million for the overhead line.

The proposed line would carry power from Valley Stream Plant now under construction on the north edge of the Los Angeles area to a major receiving and distribution substation nearby in west San Fernando Valley.

A part of the 21-mile right of way follows existing lines, flood channels, and other undeveloped property, and the dwellings under condemnation are in a relatively small area.

Morris pointed out that the general policy of the department is to obtain the most economical selection of route and type of construction for transmission lines and estimated that if the municipal system were required to put all transmission lines underground within the city it would cost more than $26 million.

Pirating of Engineers Studied

Office of Salary Stabilization trying to end practice. Agency sends out questionnaires to companies to get information

The Office of Salary Stabilization is trying to end job-hopping and pirating of engineers, which it feels is "a particularly aggravating problem" due to the shortage.

There are no government manpower restrictions, as there were during the war. So OSS Director Joseph D. Cooper is exploring the possibility that the undesirable practices can be discouraged, if not completely wiped out, through salary-control regulations and cracking down on violators.

Questionnaires to Engineering Firms . . . First OSS target is the engineering firms. A questionnaire is going out to them soon asking for information on compensation and employment practices before Korea and today. This survey will be followed, later, with a similar questionnaire to large companies which employ engineers. The Defense Production Act requires employers to supply the information requested.

Out of the answers, OSS hopes to get clues to violators as well as a picture of what the situation is. This will be helpful in drafting a special regulation on engineering pay.

Defense Mobilizer Charles E. Wilson and the Atomic Energy Commission are reported to be particularly upset about the practices of some engineering firms, and will cooperate in the OSS project.

There have been complaints of some engineering firms hiring engineers from industrial employers and then selling back their services, sometimes to the same employer, thus enabling the engineer to increase his earnings and the employer to keep the engineer's services.

Acclerated promotions of young engineers and bidding above stabilized salary levels for recent college graduates are other practices complained of. Some companies have complained to stabilization officials that the price of engineering college graduates is at least $50 a month above what most companies are allowed to bid. This situation is being examined also by the Wage Stabilization Board.

Information Requested . . . The questionnaire being prepared by OSS to go to engineering firms asks for the following information: (1) Nature of services performed by the firm in addition to consulting, for example, construction; (2) entrance salaries (highest and lowest) of engineers hired within six months of graduation in the six months before Korea, the last half of 1951, and the first two months of 1952 (categories of engineers listed: aeronautical, chemical, electrical, industrial, mechanical, metallurgical, mining, and others); (3) number of engineers employed and the highest and lowest salaries paid them in those categories and in each of the three periods; (4) listing of any individual increases granted in excess of the 10% "catchup" and 6% "merit" formulas; (5) description of any bonus plans in effect, including the date when instituted and any modification since the freeze date of Jan. 25, 1951, the number of engineers receiving bonuses, the total amount paid in bonuses, and the largest bonus paid to any one engineer; (6) listing and description of compensation paid to engineers other than salary or bonus, such as commissions, expense or per diem accounts, travel allowances and subsistence; and (7) how many engineers a firm lost in past year.

Executives' Pay Gains the Least, Survey of 41 Companies Shows

	All Industries			Public Utility Industry		
	Average Compensation 1950	1939	Per Cent Increase	Average Compensation 1950	1939	Per Cent Increase
1. .1% Highest Paid Employees..... (One per 1,000 employees)	$59,300	$43,700	+35	$33,200	$26,500	+25
2. Next .9% Highest Paid Employees.. (Excluding the .1% highest paid)	15,200	10,500	+45	11,000	7,300	+50
3. First Level of Supervision..... (Foreman equivalent — excluding overtime)	5,500	3,000	+83	5,700	2,900	+96

The above table has been taken from a study prepared by Arch Patton of McKinsey & Co, New York City, on 41 companies in the petroleum, chemical, steel, banking, and public utility fields. This study is appearing in the March issue of the Harvard Business Review. Public utility compensation is substantially below average at the management level, although in line with industry at first level of supervision. The range in 1950 at the top management level of public utilities is from $20,000 to $41,000 and from $9,000 to $12,000 in middle management.

UTILITY DATA SHOWS OUTSTANDING 99.94% PERFORMANCE RECORD FOR L-M VALVE TYPE LIGHTNING ARRESTERS

Six-year performance records of a large midwestern utility show that L-M valve type lightning arresters have an exceptionally good operating record. With a total of 41,175 service years, only 23 L-M arresters had Isolator* operations while in service—there was only one instance of radio interference from L-M arresters—and of 613 arresters brought into the shop for electrical testing, not one was found faulty.

Here are the records for the years 1945 through 1950.

Year	Arresters in Service	Isolator Operations in Service	Number Tested	Failed in Test
1945	3,286	5	0	0
1946	4,322	2	11	0
1947	6,020	2	137	0
1948	7,469	4	118	0
1949	8,686	3	186	0
1950	11,392	7	161	0
Total Arrester Service Years	41,175	23	613	0

23 ÷ 41,175 = .056% failure rate

This substantiates the claims that L-M engineers have always been able to make—that L-M arresters give remarkable protection, excellent performance, and long life with unchanging characteristics.

Testing Greatly Simplified. The Pyrex® glass housing of L-M valve type arresters allows you to "test by sight." You don't have to make an electrical test of every single arrester. Just look at the spark gap—any irregularities can be detected by sight. If the Isolator* is intact you know the valve element is okay. That's all there is to it—if you use L-M Pyrex-housed valve type lightning arresters.

Get Complete Details. For complete information on L-M Lightning Arresters, and details of visual test methods, ask the L-M Field Engineer, or write Line Material Co., Milwaukee 1, Wis. (a McGraw Electric Company Division).

LINE MATERIAL

Lightning Arresters

Complete Coordinated Equipment for Distribution Today

*"L-M's "ISOLATOR," watchdog of arrester trouble, gives positive assurance against grounding feeders through damaged arresters, by disconnecting the ground lead from the arrester. (As shown in the operating company records above, in 41,175 arrester-years there were 23 Isolator operations, which provided this disconnecting service.)

80

NEW! EXCLUSIVE!
L-M's 7.5 KV "FAMILY"
of cutouts with interchangeable doors!

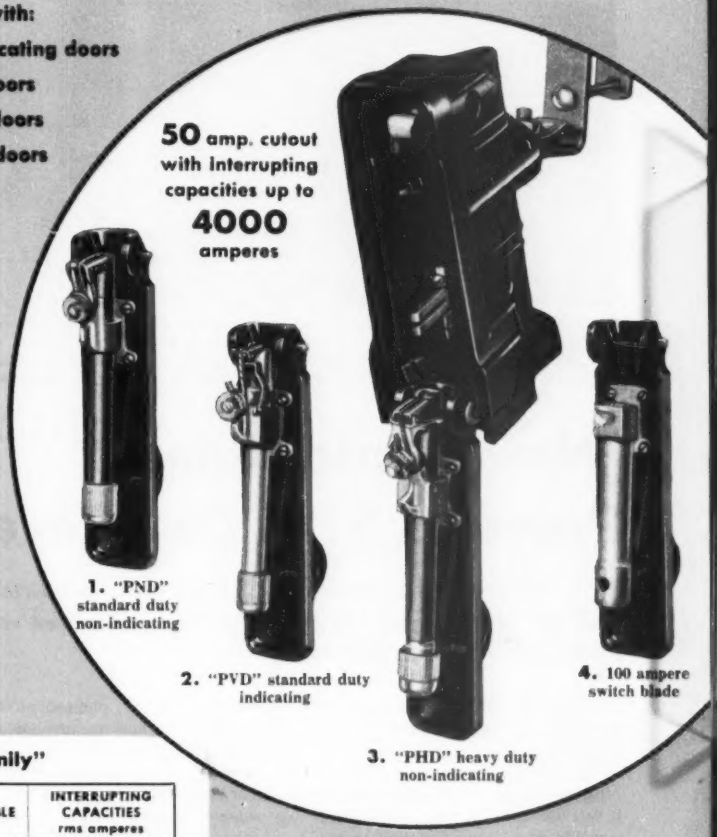
50 and 100 ampere cutouts, each with:
new "PND" standard duty non-indicating doors
"PVD"* standard duty indicating doors
"PHD" heavy duty non-indicating doors
100 and 200 ampere switch blade doors

Here's another L-M "first"! The new 7500-volt family of 50 and 100 ampere cutouts, each with four interchangeable doors to meet a wide variety of services. As operating requirements change, you simply change a door—in 6 seconds the job is done! Saves warehousing, saves installation time, saves in operation.

Safer, too. Doors are removed or hooked on, all with the switch stick. When door is open, all parts are dead.

GET THE WHOLE STORY

Ask the L-M Field Engineer for details on L-M's new "first families" —the 7500-volt family shown here, *and L-M's new 5000-volt family*, also! Or write Line Material Company, Milwaukee 1, Wis. (a McGraw Electric Company Division).


50 amp. cutout with interrupting capacities up to 4000 amperes
1. "PND" standard duty non-indicating
2. "PVD" standard duty indicating
3. "PHD" heavy duty non-indicating
4. 100 ampere switch blade

L-M's new 7.5 kv "Family"

RATING	INTERCHANGEABLE DOORS AVAILABLE	INTERRUPTING CAPACITIES rms amperes
50 AMPERES	1. "PND" standard duty non-indicating	1200 amperes
	2. "PVD" standard duty indicating	1200
	3. "PHD" heavy duty non-indicating	4000
	4. Switch Blade 100 amperes continuous current rating	
100 AMPERES	5. "PND" standard duty non-indicating	3000 amperes
	6. "PVD" standard duty indicating	3000
	7. "PHD" heavy duty non-indicating	8000*
	8. Switch Blade 200 amperes continuous current rating	

"PND", "PVD", AND "PHD" are L-M Trademarks *Available soon

100 amp. cutout with interrupting capacities up to 8000 amperes

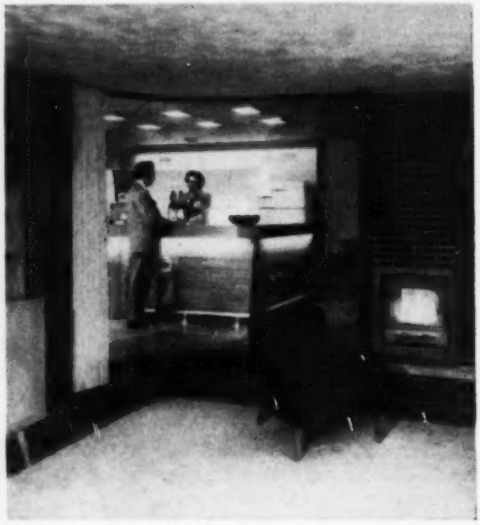
5. "PND" standard duty non-indicating
6. "PVD" standard duty indicating
7. "PHD" heavy duty non-indicating
8. 200 ampere switch blade

LINE MATERIAL
fuse cutouts

Complete Coordinated Equipment for Distribution Today

NEW WORLD HOME is modest appearing six-room dwelling

ST. LOUIS COUNTY supervisor Lumen Matthews cuts ribbon in the official opening of home, something of a ceremony. Behind him are: John C. Gross, builder; Mrs. John C. Gross; Robert L. Coe, Union Electric Co; G. R. Brownback, and H. C. Davis of General Electric



"KITCHEN OF TOMORROW," as seen from living room. View shows valance lighting, six overhead lights and soda fountain. Laundry equipment is included in the kitchen. Ironer is stored in fountain counter. Note recessed television set in living room

"New World Home" Promises $1 A Day Revenue

Brings new ideas to Greater St. Louis area. Connected load is 47 kw. Estimated demand only 10 kw and annual use 24,000 kwhr for a load factor of 27.4%

ROBERT L. COE, Residential Sales Manager, Union Electric Co. of Missouri, St. Louis

During the month it was open for inspection, 22,187 visitors looked over the "New World Home" in a St. Louis suburb. This six-room house is fully equipped, electrically speaking. It will use an estimated 24,000 kwhr annually at an estimated cost to the customer of only a dollar a day. Connected load is 47 kw and estimated demand 10 kw.

Among its features are a "Kitchen of Tomorrow," electric heat supplied by a heat pump which reverses operation to air condition the home in summer, electric blankets, complete light conditioning, sun lamps permanently installed in the bathrooms, television, and everything practical that could be devised, electrically, to make for happier, healthier, and more comfortable living. There is a remote control carefully planned wiring system which permits turning on or off all lights from the bedroom to the garage from either the master bedroom or the garage. Lighting is based on pre-tested recipes.

Analysis by Union Electric Co engineers indicates that 35,000 families living in homes with comparable electrical equipment would require as much electricity as is now used by all of the Company's 440,000 residential customers.

High Revenue—Good Diversity . . . The two factors—large potential energy use and favorable diversity between load and demand—make the advances shown in the Home of great importance to the electric utility industry. For the home-owner, however, there is another important factor. The average visitor at the home would put it this way:

"Sure, all-electric living is great. But can I afford it . . . how much would it cost?"

Each of the 22,000 visitors was given a clear-cut answer to this spoken or unspoken question. Table 2 was used to show visitors that all the better living incorporated in the home was available at slightly less than a dollar a day for electricity.

The New World Home was sponsored by the Union Electric Co, General Electric Co, Lammert's (home furnishings), and John C. Gross Co, (builders). In the opinion of the sponsoring organizations it was highly successful promotion and public relations venture.

To the electric industry, it provides statistical evidence of the great potential in the sale of more and more power to America's home-owners.

Brings Ideas . . . The home was designed, constructed, furnished, and equipped to bring new ideas and new concepts of modern electrical living to the Greater St. Louis area. Promotional material appeared in all media—metropolitan, community, and industrial publications, and radio announcements. Climaxing the program was a special television show.

The home has several "firsts" to its credit. The first residence in the St. Louis area, constructed by a merchant builder, to be heated and cooled by the heat pump. The first in the area to incorporate the new Kitchen of Tomorrow." The first completely light-conditioned home in Greater St. Louis.

There are two 3-hp heat pumps. Both use either air or a ground coil for heat source and sink. The supplemental ground coil installation was made to assure satisfactory performance during very cold weather. Engineers predict that the ground coils will only be used when temperature is below 20 deg F.

In the kitchen, the 500-sq ft area is designed for family living. Included are an electric range, refrigerator, freezer, ironer, dishwasher, garbage disposer, soda fountain, six large recessed overhead lights, valance lighting, localized lighting on the work areas. Plug-in strip over work areas adds to the convenience of using small appliances.

Valance lighting is a feature in the living room and bed rooms.

SIDE AND END PANELS of heat pump were removed to show the mechanism inside

FEATURED IN THE KITCHEN are range, refrigerator, dishwasher, water heater, freezer, washing machine, ironer, soda fountain, valance and overhead lighting, and plug-in strip

New World Home Cost and Use of Electricity

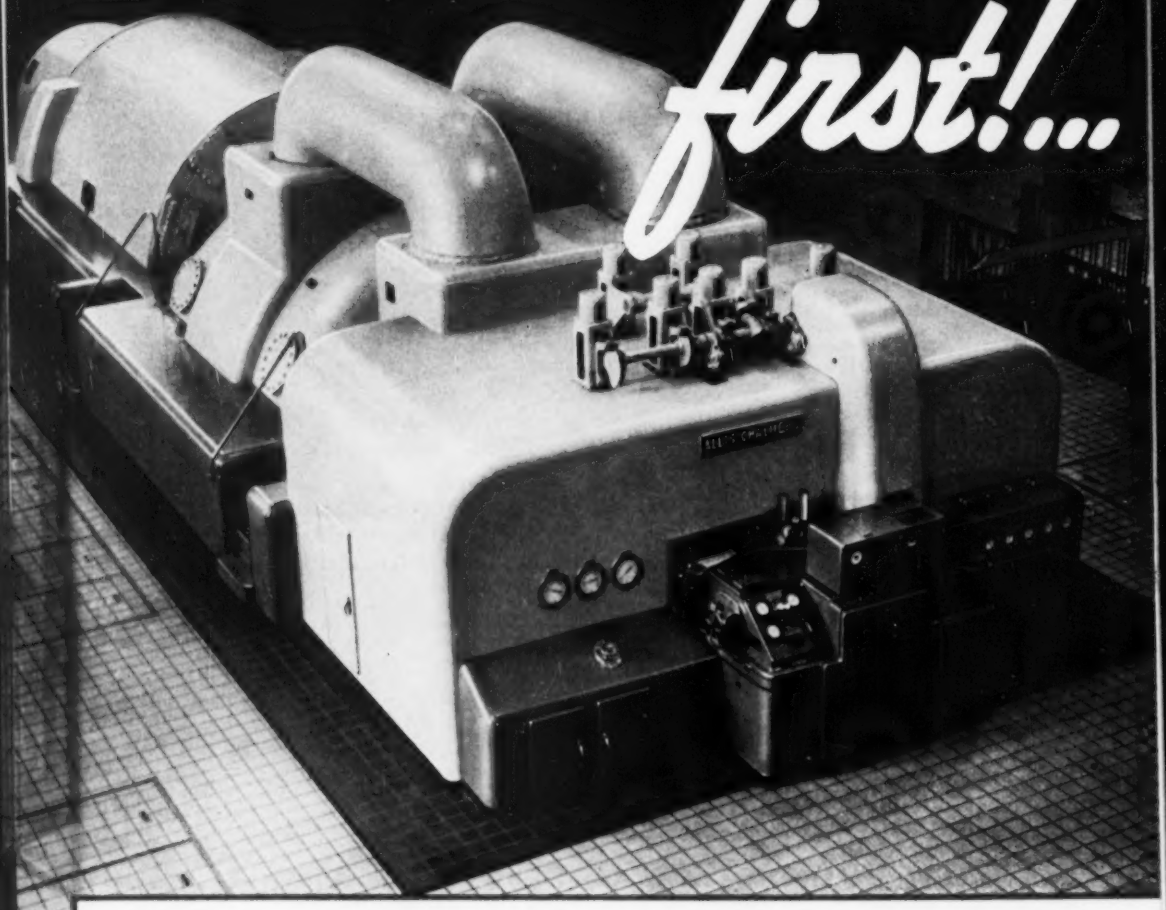
Room	Annual kwhr	Annual Cost	Average kwhr/mo	Average Cost/mo	Total Load kw	Equipment Cost
Living room	252	$3.96	21	$ .33	1.068	$571.90
Hall	72	1.20	6	.10	.980	112.70
Bedroom #1	132	2.04	11	.17	.852	348.75
Bedroom #2	156	2.40	13	.20	1.132	250.75
Bedroom #3	120	1.92	10	.16	.730	305.80
Bathroom #1	84	1.32	7	.11	1.060	40.90
Bathroom #2	96	1.56	8	.13	1.213	54.15
Porch	48	.72	4	.06	.570	78.35
Kitchen	3,684	59.40	307	4.95	28.256	3,632.39
Garage	24	.36	2	.03	.300	2.25
Basement	120	1.92	10	.16	1.435	51.53
Outdoor	72	1.20	6	.10	.916	51.90
Sub-Total	4,860	$78.00	405	$6.50	38.452	$5,501.37
Heating Heat Pumps	10,000	162.00	834	13.46	5.710	5,600.00*
Cooling	3,980	63.60	331	5.34		
Water Heating	5,160	44.40	430	3.70	3.000	309.90
Total	**24,000**	**$348.00**	**2,000**	**$29.00**	**47.162**	**$11,411.27**

* This cost is based on the suggested dealer price.

New World Home Cost and Use of Electricity by Application

Use	kwhr/yr	Annual Cost	Average kwhr/mo	Average Cost/mo	Average Cost/day
Lighting, Misc. Appl	1,200	$19.20	100	$1.60	5.3¢
Cooking	1,200	19.20	100	1.60	5.3¢
Refrigeration	960	15.60	80	1.30	4.3¢
Electric sink	180	3.00	15	.25	0.8¢
Television, Radio	420	6.60	35	.55	1.8¢
Laundry	900	14.40	75	1.20	3.9¢
Heat Pump	13,980	225.60	1,165	18.80	61.8¢
Sub Total	18,840	$303.60	1,570	$25.30	83.2¢
Water Heaters	5,160	44.40	430	3.70	12.1¢
Total	**24,000**	**$348.00**	**2,000**	**$29.00**	**95.3¢**

ANOTHER ALLIS-CHALMERS *first!...*



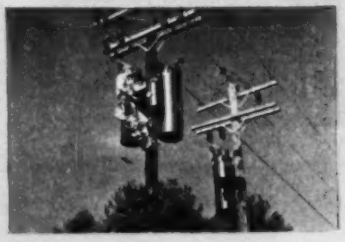
Equipment for Power: Water Conditioning equipment, chemicals and service . . . Steam and Hydraulic Turbines . . . Generators . . . Condensers . . . Steam Jet Air Ejectors . . . Power Plant Pumps and Motors . . . Transformers . . . Circuit Breakers . . . Switchboards and Control . . . Switchgear . . . Unit Substations . . . Utilization equipment.

ALLIS-

IT PAYS TO KEEP PACE WITH MACHINERY PROGRESS

Extend Distribution Regulator Line

Low-cost ⅝% step distribution voltage regulators are now available for every feeder. Additional ratings continue the long line of firsts for the power industry—paced by the introduction of ⅝% step regulators 19 years ago.



Supercharged Cooling

On-the-Line Performance of New-Design Turbine-Generator Proves Worth of Cooling with High-Velocity Hydrogen in Direct Contact with Conductors

IT'S BEEN SAID that good things come in small packages, and here's one that definitely does. Supercharged hydrogen cooling of this turbine-driven generator permitted a reduction in length sufficient to provide numerous design, installation and operating advantages.

Already proved in operation at the Wisconsin Power and Light Company's Edgewater Station, this precedent-setting turbine-generator is to be duplicated in two additional units now on order for the same company.

CHECK THESE ADVANTAGES

In this 60,000-kw, 3600-rpm turbine-generator, a two stage centrifugal compressor integral with the rotor drives hydrogen *through* the rotor conductors at high velocity. This supercharged cooling provides these advantages:

- Generator length reduced—permitting smaller plant size.
- Generator weight cut 25 percent — reducing foundation requirements.
- Subtransient reactance increased — permitting smaller breakers and bus structures, and resulting in lower torques under fault conditions.
- Differential expansion reduced, due to shorter length and greater temperature uniformity.

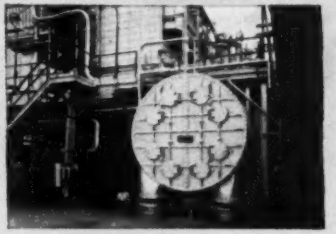
DISCUSS YOUR NEEDS

Because of pioneering achievements like this, you know that you can rely on Allis-Chalmers for engineering leadership in power production and distribution equipment. And you gain most when you call in your A-C representative during the early planning stages. Allis-Chalmers, Milwaukee 1, Wisconsin. A-3631

CHALMERS A-C ALLIS-CHALMERS

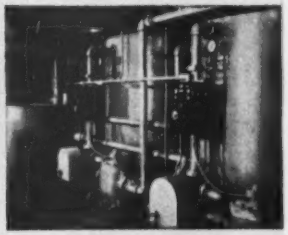
Built for Outdoor Operation

Condensers and auxiliaries are being built for more and more outdoor central-station installations, and Allis-Chalmers is continually developing improved designs for such money-saving power plant applications.



Add New Ion Exchangers

Demineralizers, ion exchangers and water conditioning equipment, chemicals and service of all types — including latest alkalinity-reducing ion exchangers — are available, engineered to fit your requirements.



Displaying the Niagara Story

To show how the five investor-owned companies which want to develop the Niagara River now serve 90% of New York State, Rochester Gas & Electric Corp has developed this display. It is 18 ft wide and 11 ft high. The areas served by the companies are shown in different colors, and 103 flashing colored lights locate the larger communities. Two panels at the sides (not shown) carry a sketch of the project planned by the companies and list the reasons why they and not the federal government should do the job. The display, created by Elmer Villnow, head of RG&E's display department, attracted wide attention at the annual meeting of the New York State Horticultural Society and will be exhibited at county fairs during the summer.

Consolidated Edison Ads Feature Pictures

Taking advantage of people's love of pictures, Consolidated Edison has begun an advertising campaign featuring "human interest" pictures. These are identical to those commonly used in newspapers, and the advertising message is limited to a few words in the caption and to an overline.

Each ad consists of a 2 or 3-col halftone, a 14-point overline reading, "PHOTO BY *Con Edison*"; and the caption. The caption has a two line, 24-point, boldface catch phrase inset into the 10 on 12-point body type. The type is boxed on three sides with a 2-point rule. Centered above the overline but cut off by a 1-point rule is the word "Advertisement" set in 8-point light caps.

One recent ad showed a lineman rescuing a cat. The caption read: "Scairdy-Cat"—Tabby was scared out of a few lives when she climbed up on a light shield and became too skittish to climb back. Fortunately, Louis Ramstad, Con Edison emergency man, came along just in time and rescued her. *Con Edison people are on the job.*

Ray Martin, advertising manager, reports that newspapers have been giving the ads favorable position. The "Journal-American" has run the ads on picture pages. Other papers have been placing them on good news pages, often next to type. The bigger papers have been getting three pictures for each insertion and must run them together in a block. Tabloids are allowed to run the pictures on facing pages.

'Meet Corliss Archer' on ABC Starting Apr. 6

"Meet Corliss Archer," radio program of the Electric Companies Advertising Program, is moving to the American Broadcasting System. The change was made because the alternate-week schedule over the Columbia Broadcasting System was not completely satisfactory to all concerned.

The ABC schedule calls for a half-hour program from 9:15 to 9:45 pm, EST, every Sunday, beginning April 6. The program will follow that of Walter Winchell, newscaster and columnist. The full network will be used.

AD COPY THEMES

Southern Co—"Southern City, U. S. A. Wraps the Nation's Packages." This ad, one in a national campaign, emphasizes the manufacture of bags, wrapping paper, and paperboard boxes in the company's four-state area.

Northern States Power Co—"Meet a Financier, One of NSP's 59,000 Owners" is the headline of an ad featuring a farmer who owns NSP stock. The ad plays up local ownership of the company.

Kansas City Power & Light Co—"How Much Is $40,000 a Day . . . Every Day for 7 Years?" Ad emphasizes that the answer is $104 million, the amount the company is investing in new facilities.

Utilities in Iowa Added 135,980 Kw in 13 Months

Investor-owned electric utilities in Iowa added 135,980 kw of generating capacity during the 13 months ending Dec. 31, 1951, results of a survey conducted by Iowa Utilities Association show.

The association's informal report indicated that new projects costing $26,025,000 would get underway in 1952 in addition to $50,020,000 in projects not completed in 1951. Projects totaling nearly $33 million are planned for continuation into 1953 and 1954.

The survey indicated that 90,000 kw of capacity may be completed this year. Units for an additional 146,000 kw are planned or else have been ordered.

the lower prices of SYLVANIA'S NEW INDUSTRIAL FIXTURES mean Brighter Business!

Attention Lighting Contractors and Wholesalers!

Sylvania now offers a fixture line that is undoubtedly the greatest advance ever made in fluorescent fixture engineering. This new line is bound to mean better and brighter business for your customers . . . for 3 big reasons. Here's why:

1 **Lower prices and lower maintenance . . .**

assured by Sylvania's improved simplified designing. This designing permits fewer parts and faster assembling operations. These savings in time and materials are passed on to your customers. In addition, rugged construction and Sylvania long-life tubes mean minimum maintenance costs.

2 **222 New Industrial Fixtures.**

Adaptable to the full range of industrial lighting . . . from simple store-room illumination to high intensity lighting required in inspection and precision assembly operations.

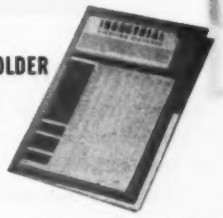
3 **Engineered for superior performance.**

Finished in RLM approved porcelain or Miracoat enamel, Sylvania fixtures are unsurpassed in initial and maintained light output.

Urge Electrical Contractors to *Display this sign.* It identifies them as the Lighting Contractor equipped to offer finest service and finest fixtures . . . SYLVANIA.

FREE ILLUSTRATED FOLDER

brings you full details about Sylvania's new Industrial Fixtures. Mail the coupon for your copy NOW.



SYLVANIA

FLUORESCENT TUBES, SIGN TUBING, FIXTURES, WIRING DEVICES; LIGHT BULBS; RADIO TUBES; TELEVISION PICTURE TUBES; ELECTRONIC PRODUCTS; ELECTRONIC TEST EQUIPMENT; PHOTOLAMPS; TELEVISION SETS

Sylvania Electric Products Inc.
Dept. L-3103, 1740 Broadway, New York 19, N. Y.

Please send me illustrated folder describing the full line of Sylvania's New Industrial Fixtures.

Name.....

Street.....

City.....Zone....State.....

THIS IS AN INSULATING BARRIER

It is used to sectionalize a modern, totally-enclosed tubular bus, to serve as a "fire-wall" to prevent the running of fire, chimney-like, through the enclosed system.

From a ceramic production standpoint, this piece is "tricky" in the extreme. You see, in order to develop adequate flashover value—within a minimum diameter of housing, a projecting central flange is necessary. For electrical and mechanical security, the flange is integral with the main body of the bushing.

Without that flange, the piece would be a simple tube, of 7-inch inside diameter, with 1½-inch wall thickness. But the production of such a tube, with a wall thickness from which a piece like this can be formed, is quite another story. Only the most uniform of Vacuum-process clay body, formed, dried, turned and fired according to most advanced techniques, and under precision controls, makes its production possible.

These are the techniques, and the controls, of the Lapp production method. They account for the successful production of "nightmare designs" that "only Lapp could make." They account, too, for the superior performance of Lapp porcelain that spells "extra value" in any equipment with porcelain by Lapp. Look for the name LAPP on electrical equipment and insulators you buy. It's a guarantee of operating security, long life, low upkeep.

Lapp Insulator Co., Inc., Le Roy, N. Y.

Lapp

FINANCIAL

Equity Offerings at New High . . .

. . . for post-war period, annual report of SEC shows. Further divestment of firms under Holding Company Act noted

A new post-war high in "equity" offerings by corporations to take care of their large construction programs, and a further divestment of companies under the Public Utility Holding Company Act of 1935 were the highlights reported by Donald C. Cook, new chairman of the Securities and Exchange Commission, to Congress.

The commission's seventeenth annual report said that total offerings topped $5 billion for the sixth consecutive year, with the fiscal 1951 totaling $6.5 billion, $1.1 billion in excess of the 1950 figure and slightly in excess of the $6.2 billion average for the last six years.

Equity Financing Up . . . An increase in the trend toward equity financing was noted in the report. Of $9.5 billion of securities offered for cash sale during the six-year period 1940-1945, $6.8 billion were bonds, $1.2 billion preferred stock, and $1.5 billion common stock (the latter being 16.1% of the total). However, of $29.1 billion of securities offered for cash sale during the last six years, 1946-51, $16.6 billion were bonds, $3.5 billion preferred stock and $9.0 billion (30.7%) common stock.

Electric and Gas Financing Down . . . Total security sales of electric and gas utilities for the 1951 fiscal year aggregated $1.8 billion of which $785.9 million were bonds, $69.1 million debentures, $137.4 million preferred stock, $413.3 million common stock, and an estimated $400 million for private placements. This compares with $2.2 billion for the previous year of which $953.8 million were bonds, $104.7 million debentures, $362.0 million preferred stock, $501.5 million common stock and $300 million for private placement.

Holding Companies on Decrease . . . At one time or another from June 15, 1938 to June 30, 1951, a total of 2,175 companies have been subject to the active regulatory jurisdiction of the SEC as components of registered holding company systems. Of this number 211 were holding companies, 925 were electric or gas utility companies, and 1,039 were non-utility companies. By the close of the past fiscal year there were but 444 companies subject to regulation, including only 64 holding companies, 195 electric and gas utilities, and 185 non-utility companies. During the last fiscal year, 16 electric, gas, and non-utility companies with assets totaling $104 million were divested under the Holding Company Act. In addition there were three companies which divested themselves of partial segments of properties not retainable under the act for a consideration of a little over a million dollars.

When Section 11 was getting under way in 1940, there were 12 holding companies operating electric and gas service in 10 or more states. By June 30, 1951 these holding companies were supplying no such services in these states. Upon completion of Section 11, cases now in progress, the figures shown in the tabulated form below will be reduced still further:

Registered Public Utility Companies Providing Electric or Gas Service

	June 30, 1951	July 1, 1940
20 or more states	None	2
15 to 19 states	None	3
10 to 14 states	None	7
5 to 9 states	7	17
3 or 4 states	16	17
1 to 2 states	15	9
	38a	55

a-Excluding one registered holding company having no domestic utility subsidiaries, and one system all of whose utility properties are leased to another system.

The report also stated that from Dec. 1, 1935 to June 30, 1951, 240 companies with aggregate assets of $6.1 billion, before deduction of valuation reserves, have been divested by holding companies, but because of their relationships to other holding companies, remain subject to the jurisdiction of the commission.

Market Value of Securities Up . . . In addition, the commission's report contained a special analysis which compares the market values of the securities of 12 of the major holding companies at the time of their registration with the SEC in 1937 and 1938 (one registered in 1935) with the market values of such securities (or the avails thereof in reorganization) on Sept. 24, 1951. In the case of the 12 companies, the report showed a total market value of $723.4 million at the time of registration, compared with $1.6 billion at Sept. 24, 1951, or a total increase in market value of $890.3 million.

In the case of the common stocks of the same 12 companies, the study revealed an aggregate market value of $843.9 million at the time of registration as compared with $2.1 billion at Sept. 24, 1951, or a total increase in market value of $1.2 billion.

FINANCIAL BRIEFS

Gulf States Utilities Co is planning to sell competitively enough common stock to yield $6.5 million next month . . . **Indianapolis Power & Light Co** will sell 196,000 common shares and 30,000 preferred shares . . . **New York State Electric & Gas Corp** has placed $5 million 3¼% debentures with three insurance companies and plans to sell another $5 million by March 31 . . . **Columbus & Southern Ohio Electric Co** is planning to offer 150,000-200,000 common shares toward the middle of 1952 . . . **Southern California Edison Co** will sell 800,000 shares of common stock shortly.

Because market conditions make it impossible to go through with the October proposal from a syndicate headed by Lehman Brothers-Bear Stearns & Co for the purchase of the gas companies of the New England Electric System, Pres Irwin L. Moore has announced that his system has set up a new division devoted exclusively to the operation of gas companies in Massachusetts.

REGULATION

Union Light, Heat & Power Co has been blocked by Kentucky Public Service Commission in putting into effect in northern Kentucky proposed rate increases effective March 1. PSC has ruled the company failed to comply with its rules. A hearing has been set for March 26.

Today in Utility Finance

YIELDS (%)

Quality	Bonds			Preferred Stocks			Common Stocks		
	1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
DATE									
1952									
March 6	2.96	3.03	3.19	4.17	4.36	4.70	5.33	5.91	6.59
Feb. 28	2.95	3.03	3.11	4.15	4.34	4.71	5.40	5.94	6.68
4th 1951	2.92	3.07	3.21	4.32	4.50	4.91	5.42	6.18	6.84
3rd 1951	2.87	2.91	3.04	4.05	4.27	4.61	5.52	6.24	7.05
2nd 1951	3.02	3.11	3.23	4.11	3.37	4.68	5.73	6.38	7.37
1st 1951	2.87	2.93	3.00	3.96	4.19	4.52	5.47	6.20	7.13

Data: Reis & Chandler, Inc.

EARNINGS

Company	Period Months	Ended	Net Income 1952	Net Income 1951	Earnings Per Common Share 1952	Earnings Per Common Share 1951
Alabama Power	12	Jan.	$11,290,965	$9,689,840	$	$
Central Maine Power	12	Jan.	4,488,907	4,395,988	1.42	1.39
Minnesota Power & Light	12	Jan.	3,328,944	3,342,628	3.20	3.22
Texas Electric Service	12	Jan.	6,745,682	5,455,838	.....	.....
Texas Power & Light	12	Jan.	6,287,651	5,640,208	.....	.....
			1951	1950	1951	1950
Illinois Power	12	Dec.	$8,034,000	$7,355,000	$2.77b	$2.85b
Long Island Lighting	12	Dec.	4,971,137	3,745,468	1.17b	1.19b
Public Service Electric & Gas	12	Dec.	23,093,887	20,858,014	2.28a	2.08
Puget Sound Power & Light	12	Dec.	3,538,308	4,270,558	1.62	1.84

NOTE—The figures shown for the last four companies have been audited.
a—On average number of shares on which dividends were paid; b—On outstanding shares at end of each period.

FINANCING

Company and Description	Amount of Offering ($000)	Offering Price	Yield to Public
WEEK OF MARCH 6-12			
Bonds			
Illinois Power—1st mtg 3½% 1982	$20,000	$102.25	3.38%
Pacific Power & Light—1st mtg 3½% 1982	12,500	100.45	3.60
Metropolitan Edison—1st mtg 3¼% 1982	7,800	100.959	3.20
Potomac Electric Power—1st mtg 3¼% 1987	15,000	100.837	3.21
Central Power & Light—1st mtg 3¼% 1982	10,000	102.44	3.37
Preferred Stock			
Rochester Gas & Electric—60,000 sh 4¼% $100 par cum	$6,000	$100.00	4.75%
Metropolitan Edison—40,000 sh 4.45% $100 par cum	4,000	102.25	4.35
Ohio Edison—150,000 sh 4.56% $100 par cum	15,000	102.375	4.45
WEEK OF MARCH 13-19			
Bonds			
Southwestern Gas & Electric—1st mtg 1982	$6,000	.....	.....
Pacific Gas & Electric—1st mtg 1985	55,000	.....	.....
Narragansett Electric—1st mtg 1982	7,500	.....	.....
Common Stock			
Black Hills Power & Light—33,730 sh (being offered to commonholders on 1-for-6 basis (a), record Feb. 28 to expire March 13)	$599	$17.75	7.21%
Arkansas-Missouri Power—18,695 sh (being offered to commonholders on 1-for-19 basis (a), record Feb. 29 to expire March 17)	251	13.25	7.55
Middle South Utilities—600,000 sh	.....	.....	.....
SCHEDULED FOR MARCH-APRIL			
Bonds			**Bid Date**
Oklahoma Gas & Electric—1st mtg 1982	$12,000		March 24
Consolidated Edison Co. of New York—1st mtg 1982	50,000		March 25
Texas Power & Light—1st mtg 1982	14,000		March 31
Texas Power & Light—debentures 1977	5,000		March 31
West Penn Power—1st mtg 1982	$12,000		April 1
San Diego Gas & Electric—1st mtg 1982	12,000		April 1
Interstate Power—1st mtg 1982	2,000		April 2
Consumers Power—1st mtg 1987	25,000		April 9
Alabama Power—1st mtg 1982	12,000		April 22
Common Stock			
Arizona Public Service—400,000 sh			*March 27
Mississippi Valley Public Service—15,000 sh (being offered to commonholders on 1-for-5 basis, record Mar. 7 to expire Mar. 21)	.....	.....	.....
Texas Utilities—409,080 sh (being offered to commonholders on 1-for-12 basis (a), record March 5 to expire March 28)	$13,315	$32.50	5.17%
Central Louisiana Electric—53,616 sh (being offered to commonholders on 1-for-7 basis (a), record Feb. 25 to expire Mar. 31)	1,582	29.50	6.78
Interstate Power—345,833 sh (to be offered commonholders on 1-for-6 basis (a), record April 2 to expire April 18; company will name price with underwriters bidding on compensation)	.....	.....	April 3

* To be offered by First Boston Corp group, underwriters
a—Stockholders are allowed oversubscription privileges.

Connecticut River Valley Council Is Established

The Connecticut River Valley Council has been formed by groups in four New England states to begin a co-ordinated development program of conservation and restoration along the entire four-state length of the river. This council is the result of a conference at Hanover, N. H., of 60 representatives of groups including industrial, conservationist, recreational, educational, and utility organizations.

The Connecticut Council will be headed by Paul V. Hayden, director of public relations, Connecticut Light & Power Co. The membership will represent Connecticut, Massachusetts, New Hampshire, and Vermont.

The council will survey the possibilities of organizing a permanent body patterned after the Brandywine Valley Association. This group, with headquarters at Wilmington, Del., is composed of organizations located on or near Brandywine Creek in Delaware and Pennsylvania. Its purpose is to restore, conserve and improve all natural assets and all natural resources of the valley for the greatest good of all in the valley.

Feature of the conference at Hanover was the color movie "Your Valley—Your Future", which was jointly planned and produced by nine New England power companies.

Depa Changes Standards on Transformer Capacity

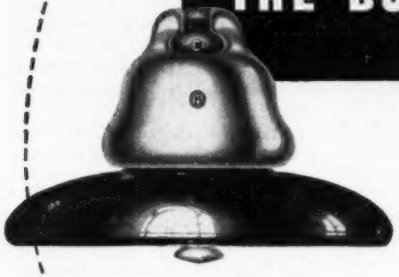
Defense Electric Power Administration has issued a new set of standards to be used in determining the normal and emergency capabilities of oil-insulated transformers.

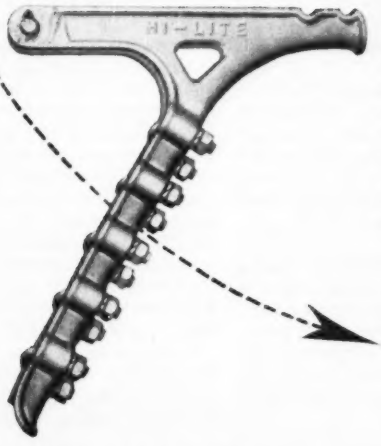
Effective March 20, electric utilities will be requested to furnish load and capability data, using the new standards, in requesting allotments which involve additional transformers or transformer banks 1500 kva and above.

For major plant additions, this information is to be filed in response to item 17 of the new form DEPA-9. For minor requirements, the information is to be included in the letter requesting specific authorization to apply the DO-H-4 rating.

Applicants are advised to request transformer capacity no greater than required to meet estimated load three years after installation.

LET'S NOT PASS THE BUCK !





A fact you may not realize about O-B transmission line hardware is this -- it is the only material of its class designed, manufactured, sold, and backed by insulator specialists. In the insulator industry, O-B is the only one that owns and operates its own foundries and forge shops. We have free choice of materials and processes, all under our own roof and all equally available to produce the most serviceable product.

This is a whole lot more than being just "handy." It establishes an important point-of-view. It produces a single responsibility for the insulation *and* support of the conductor. These two closely associated jobs are likewise associated in the minds of engineers, designers, and manufacturing departments. It eliminates all "buck passing." Parts that must work together are made by men who work together.

Put the total responsibility for holding your conductors where it belongs -- in the hands of the only men who deal with the total problem. Build with O-B insulators *and* hardware.

Ohio Brass

MANSFIELD • OHIO

4131-99

ALBERT LANGE, a member of the research department of Holophane Co, Inc, points to a prismatic lenses unit on the Light & Vision Institute's 18-panel board. Demonstration was part of a meeting held recently at the institute for utility and manufacturing representatives

Holophane Offers 2 New Units

Company demonstrates vertical surface lighting products at a meeting held at its Light & Vision Institute

Two new vertical surface lighting units which offer precision lighting for power plant control rooms were shown recently to industry representatives by Holophane Co, Inc, of New York. The demonstration was given at a meeting sponsored by Holophane at its Light & Vision Institute, which was established in June, 1951.

Feature a New Controlens . . . Designed to provide speedy visibility and efficient discernment of fine detail, the units feature a new Controlens with a concave cross section showing a unique prismatic pattern. The concave Controlens concentrates a high proportion of the lamp output on the vertical surface with only a minimum of light or brightness directed toward the viewer.

One of the products is a 150-w recessed unit, which is designed to fit into a 12 in. acoustic tile or plaster ceiling. The concave cross section of the lens, elevated position of the lamp, and the sharp prismatic control help to screen light from the observer's eyes. An adjustment lever is provided for positioning the lamp. This device is operated with the lamp burning and the unit in place and allows for lamp tolerances of plus or minus 3/16 in. in light center length from the nominal 5¼ in.

A companion unit is designed for direct attachment to the ceiling and has the same performance and optical details as the recessed unit. The surface unit is suited for use where recessing is not possible because of ceiling construction.

Albert Lange, a member of the research department who conducted the demonstration, explained that the control of the basic principle of refraction as applied to other Holophane products was also applied to these new vertical surface units.

Light Control from Source . . . Lange also demonstrated prismatic control of light from the source with the aid of the institute's 18-panel control board. Among the types of lighting displayed were those for streets, underpasses, building faces, surgery, and jewelry store lighting fixtures.

The Illumineering Corner of the institute, which illustrates the engineering use of color, devotes attention to light control from the surface. Here the human eye is studied to determine which of its zones are more receptive to glare and color. In this field Harry L. Logan, vice president in charge of research, has made extensive researches.

Preceding the demonstrations, Clarence C. Keller, vice president in charge of sales, outlined the commercial policy of the company, stressing the educational aspects of the institute. He said industry engineers should consult with the institute when confronted with puzzling lighting questions. The lighting center would help utility men solve their lighting problems, he added.

Other speakers were Daniel J. O'Neill, manager of the application engineering department; Logan; Gene G. Rae, sales manager; and Frank E. McLean, sales engineer.

Among those who visited the institute and attended the meeting were representatives from Jersey Central Power & Light Co, New Jersey Power & Light Co, General Electric Co's Street Lighting Department, Newark, N. J.; and Lederle Laboratories, Pearl River, N. J.

Judd Kaye, Holophane's New Jersey sales representative, was chairman of the meeting.

Westinghouse's '51 Sales Set Record, Income Drops

Westinghouse Electric Corp's sales during 1951 set a new record of $1,240,801,000, a 22% increase over the $1,019,923,000 reported in 1950.

Net earnings, however, declined to $64,578,000, equal to $4.03 a share on 15,549,697 common shares, from $77,922,000, or $5.36 a share on 14,190,654 shares a year earlier.

The 17% decline in net income was attributed to an increase in taxes of about 35%, rising from $77 million in 1950 to $104 million in 1951.

The 1951 net income was equal to a return of 5.2% of net sales billed, a decrease of 2.4% from the postwar high of 7.6% set in 1950.

Westinghouse's current assets on Dec. 31, 1951, were $653,886,000 and current liabilities were $198,607,000, resulting in working capital of $455,-

279,000. On Dec. 31, 1950, current assets were $604,094,000, current liabilities $148,222,000, and working capital $455,872,000.

Plans to Finish Canada's 1st Polythene Plant in '53

Canada's first plant for manufacture of polythene, plastic used in the electrical, pharmaceutical, and packaging industries, will be built at Edmonton, Alberta, by Canadian Industries, Ltd.

Construction of the $13-million plant is expected to begin this spring, with production scheduled for late 1953. The plant will be erected on a 300-acre site and will employ more than 200 persons. John D. Wright, now manager of CIL's Windsor, Ontario, chemical plant, will be manager.

Operations will require about 10 million cu ft of natural gas, 8 million gal of water and 35,000 kwhr of electricity daily. Output will be 6,000 tons annually, eight times the amount now available for importation from Britain and the U. S. First used in England as an insulating material for radar equipment, the plastic until now has been imported.

SALES ASSIGNMENTS

COMPANY STAFFS

Unistrut Products Co, Chicago, has made D. A. Brownlie western district manager. Brownlie, who joined Unistrut last fall, will supervise sales and distribution in California, Arizona, Oregon, Washington, Utah, Nevada, Idaho, and Alaska. He will maintain headquarters in San Francisco.

Libbey-Owens-Ford Glass Co's Fiber Glass Division has established a special district sales office at 120 South LaSalle St., Chicago. Mark Joseph Wells, formerly with General Motors Corp, will be in charge of the sales office.

General Electric Co has named E. R. Cotton manager of utility sales in its New York Office. Cotton, who came to GE in 1916, fills the position vacated by A. M. Wainwright, who was recently appointed manager of the company's District Central Station Division.

Allis-Chalmers Manufacturing Co has assigned Edward R. Ausley to its Atlanta, Ga., district office as an electrical service engineer. Ausley was employed by Florida Power Corp before coming to A-C in 1950.

REPRESENTATIVES

Accurate Manufacturing Co, Garfield, N. J., has appointed Charles E. Scholl as its New England sales representative. Scholl will make his headquarters at 952 Main St., Bridgeport 3, Conn.

NEW ELECTRICAL CONSTRUCTION

A weekly selection of U. S. electrical construction projects announced by private and government utility systems involving more than $70,000. Also listed are major industrial and construction jobs where electrical work is indicated or implied

UTILITIES

Proposed Construction

Alabama—Dixie Electric Co-operative, Union Springs, 97.64 mi. rural distr. lines and one 44 kv sub-station, Union Springs. Plans deposit $10.

California—State Div. Hys. 120 S. Spring St., Los Angeles, furnishing, installing hy. lighting, illuminated signal system, modify street light system and conduit for fire alarm sys. on Santa Ana Freeway from Los Angeles to Lyons Sts., Los Angeles, Los Angeles Co.

Colo., Denver—Public Service Co., 900 15 St., Lacombe Power Plant, $7,300,000. M. M. Koch, vice pres. and elec. oper.

Idaho, Mountain Home—U. S. Eng., Building 602, City-County Airport, Walla Walla, Wash., cold storage bldg., Mountain Home Air Force Base, Serial No. ENG 45-165-52-22.

Iowa—Chariton Valley Electric Co-operative, Albia, 25 mi. rural distr. lines and completion previously approved construction, Lucas Co. $149,000. Brown Eng. Co., 322 K P Bldg., Des Moines, consult. engr.

Mich., Hillsdale—Dpt. P. Wks., power plant alterations, equip., incl. mfg. and erection 3,000 kw. diesel engine generating unit, auxiliaries. Plans deposit $20, refundable, Hamilton, Weeber & Ward, 356 Houseman Bldg., Grand Rapids, engrs.

Mich., Lansing—City, Otto E. Eckert, genl. mgr. Bd. LIght Comrs., brick, steel, concrete municipal power plant addn., incl. fdn., excav., and flume from dam to station, Moores Park Station, $6,000,000. Burns & Roe, Inc., 233 Broadway, New York, N. Y., engr.

Nebraska — Eastern Nebraska Pub. Power Dist., Syracuse, 145 mi. rural distr. lines, in Johnson, Nemaha, Pawnee and Richardson Counties, $185,000. Henningson, Durham & Richardson, Standard Oil Bldg., Omaha, consult. engrs.

O., Dayton—Masters Electric Co., 126 Davis St., Zone 1, press and steel handling plant, $1,000,000.

S. C., Greenwood—State Hy. Dpt., Columbia, radio tower, etc. at new Hy. Dpt. Maintenance Shop.

South Dakota — West River Electric Assn., Wall, 398 mi. rural distr. lines, Meade and Pennington Counties, $500,000. Flahart & Colgan, 607½ St. Joe St., Rapid City, archts.

South Dakota — Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., one 2,800 kva, one 1,200 kva, and one 600 kva transformer, 8 deicing air-switch assemblies for Fort Randall Switchyard, Missouri River Basin Proj. Spec. DS 3677, L. N. McClellan, ch. engr.

Texas—XIT Rural Telephone Co-operative, Dalhart, 654 mi. new rural pole telephone lines, $275,000; rehabilitation and imprv. some existing pole telephone lines, $125,000, Hartley and Dallam Counties.

Tex., Fort Sam Houston—U. S. Govt., c/o Purchasing & Contg. Office, Bldg. 370, Fort Sam Houston, overhead electric power line to southwest area at Fort Sam Houston, $60,000.

Tex., Sherman—U. S. Eng., Box 61, Tulsa 2, Okla., installing G. C. A. power supply at Perrin Air Force Base, incl. underground primary supply cable, transformers, Inv. No. Eng. 34-066-52-45. Approx. $100,000.

Tex., Tahoka—Poka-Lambro Telephone Co-operative, Tahoka, Sect. 2, 340 mi. telephone distr. lines, Dawson-Lynn, Terry, Garza, Yokum $300,000; 260 mi. telephone distr. lines: Sect. 2A, Martin, Hockley, Borden and Gaines, $275,000. Cecil M. Hawk & Assocs., 1541 Broadway, Lubbock, consult. engrs.

Va., Blackstone—Mid-State Telephone Co-operative, Blackstone, telephone lines, $300,000.

Wis., Milwaukee—W.T.M.J., 333 W. State St., 1 story bsmnt., 24x52 ft. and 21x40 ft., rein.-con. brick, transmitter bldg. addns., alterations, $125,000. Eschweiler & Eschweiler, 720 E. Mason St., Zone 2, archts.

B. C., Matsqui—J. L. Adams, 360 Homer St., Vancouver, standby power bldg. at RCN wireless transmitting station, for Defence Constr. (1951) Ltd., 360 Homer St., Vancouver. Plans deposit $100.

Ont., Islington—Etobicoke Hydro-Electric Comn., 4969 Dundas St. W., Toronto, plans by Hanks & Irwin, 2848 Bloor St. W., Toronto, 1 story, bsmnt., 115-120 ft. electric power bldg. $250,000.

Alaska—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Eklutna, singe-trolley motor operated traveling crane for Eklutna Power Plant, Eklutna Proj. Spec. DS 3676, L. N. McClellan, ch. engr.

Low Bidders & Contracts Awarded

Colo., Colorado Springs—Douglas Jardine, 516 S. Tejon St., Colorado Springs, Colo., LB, $387,879, Municipal generating plant (piping) incl. power piping for generating plant, City, City Halls, Colorado Springs, Colo. Bids Feb. 20.

Ill., Chicago—Sherman Olson Co., 600 W. Jackson St., Chicago, 6, Ill., CA, $500,000, two factory Addns., Delta Star Electric Co., 2701 W. Fulton St., Chicago, Ill. Awarded Feb 18.

Me., Madawaska—Consolidated Constructors, Inc., 807 Congress St., Portland, Me. CA $100,000. Power plant exten., Frazer Paper Ltd., Madawaska, Me. Stone & Webster Co., 49 Federal St., Boston, Mass. engr.

Mich., Battle Creek—Consumers Power Co., C. A. Mulligan, mgr., Battle Creek, Mich. Owner Builds. $1,000,000, power expansion, incl. sub-station imprvs., power supply and electric distr. lines, incl. completion 44,000 volt line to Gull Lake.

Montana—S. T. Olson Co., Pratt Bldg., Billings, Mont. LB $277,155, 177 mi. power transmission line from north of Wolf Point to Scobey, Roosevelt and Daniels Counties. Northern Electric Co-operative, Opheim, Mont.

Nebraska—L. P. & H. Constr. Co., Linton, Ind., CA, $215,782. 168.6 mi. rural distr. lines, Valley Sherman, Garfield, Greeley and Wheeler Counties. Loup Valleys Rural Electric Membership Assn., Ord., Neb. Bids Feb. 20.

Nebraska—Hallet Constr. Co., Crosby, Minn., LB $332,281, 37 mi. rural distr. lines from Norfolk to Belden, Loup River Public Power Dist., Columbus, Neb. Bids Feb. 15.

Oklahoma—Mid-State Constr. Co., Irwin-Keasler Bldg., Dallas, Tex., CA, $310,460, est. $350,000. 215 mi. rural distr. lines, Choctaw Co. Choctaw Electric Co-operative, Hugo, Okla. E. R. Taylor, 4107 E. 11 St., Tulsa, Okla., engr. Awarded Feb. 20.

Ontario and Quebec—A. F. Byers Constr. Co. Ltd., 5675 Western Ave., Montreal, Que., CA. Approx. $270,000, TV relay stations at Rigaud, Que., Maxville, Ont. and Leonard Que. Bell Telephone Co. of Canada 1050 Beaver Hall Hill, Montreal, Que., R. L. Meek c/o owner, engr.

INDUSTRIAL, COMMERCIAL & PUBLIC BUILDINGS

Proposed Construction

Fla., Miami—Inter-American Center Auth., Dr. W. H. Walker, chn., 118 N. E. Istave St., Inter-American Cultural and Trade Center on Virginia Key, $35,000,000.

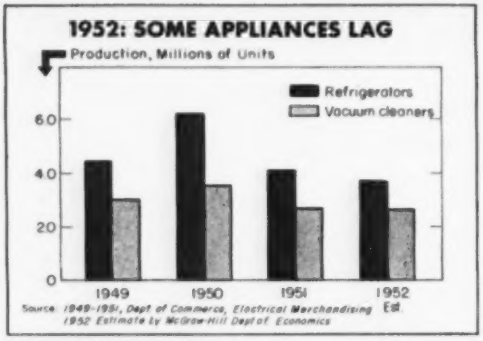
Me., Millinocket—Great Northern Paper Co., Manly, C. McDonald, pres., Millinocket, Kraft Mill, $6,000,000.

O., Warren—Copperweld Steel Co., Frick Bldg., Pittsburgh, Pa., high-alloy seamless tubing plant, $10,000,000.

Tex., Harty—Southland Paper Mills, Inc., Harty, paper mill, $15,050,000.

Tex., Houston—Phillips Chemical Co. (subsidiary of Phillips Petroleum Co.) City Natl. Bank Bldg., petrochemical plant unit at Adams Terminal on Ship Channel, $20,000,000; 2 story masonry administration.

ELECTRICAL BUSINESS OUTLOOK



Appliances Plentiful

Increased metal allocations mean that demand will determine production in 1952

The production outlook for electrical appliances is changing fast. Metal allocations for the second quarter have been increased. And there's every prospect of continued easing (EBO, March 3). So appliance output seems sure to start up soon.

The question is: How much will output rise this year? And how long will the rise continue? Inventories of many items are still heavy. That rules out a real spurt even if people want a lot of the newer appliances such as TV sets and freezers.

Actually there may be enough materials to make more units than can be sold. That's true of almost every item if you figure on substantially more materials in the second half-year. The one big exception is the electric range. That takes a lot of scarce copper.

Demand Can Limit Production . . . In most cases demand for new appliances—not materials allocations—will be the limit on production in the months to come. Dealer inventories will be in better shape by mid-year. So you can figure on the second half-year being better than the first. But don't expect sales to be like those in 1950.

Take refrigerators, for example. In 1950 the industry made over 6 million. Output recently has been at a 3.3-million rate—held down by both materials restrictions and heavy inventories.

The normal replacement demand for refrigerators is about 3 million a year. But dealers and homeowners acquired so many since Korea that replacement demand in 1952 may be only around 2.7 million. About 1 million more might be bought for new homes—though this figure also could prove less.

That adds up to 3.7 million demand for 1952, a bit lower than last year's output and well below 1950. Production could hit over the 4-million annual rate for a while, compared to 3.3 million recently. But for the full year, 4 million looks high even though there may be enough materials to make that number and more.

Newer Appliances Have Expanding Markets . . . It's pretty much the same story with other standard appliances like washing machines and vacuum cleaners. Production could be pushed close to '51 levels. But it's not clear people would buy this many. On the other hand, newer appliances, like freezers, clothes dryers, and air conditioners still have expanding markets.

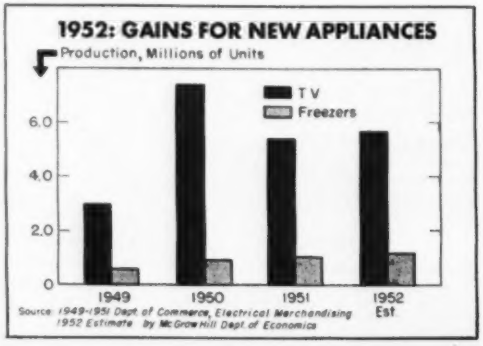
Output of these appliances may top both 1950 and 1951. And of course, there's television. Despite inventory troubles set output this year could top the 5.4 million made in 1951. But there's no chance of matching 1950's 7.5. There is no likelihood that any new TV stations will go into operation this year to give sales a sudden boost. That is a bright cloud that won't make its appearance for at least a year.

'52 Business on '51 Level . . . For the industry generally, it all adds up to a year about as good as 1951 but with the good business in the last half-year instead of the first half. The number of appliances actually installed in homes may be somewhat greater because so much of 1951 production remained in inventory at the end of that year.

There doesn't appear to be any such backlog demand for appliances now as at the end of World War II. On most big-volume items people are pretty well stocked up. And the low-income groups, who don't own as many appliances, haven't been piling up cash savings. So sales will depend increasingly on new products and better and more intensive merchandising.

Production Summary
(millions of units)

	1951 Actual	1952 Estimated
Refrigerators	4.1	3.7
Washing Machines	3.4	3.9
Vacuum Cleaners	2.7	2.7
Ranges	1.4	1.3
Freezers	1.0	1.2
Radios	12.3	12.5
TV sets	5.4	5.6



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Rural power flows through ANACONDA *Conductors of copper, aluminum and Copperweld.*

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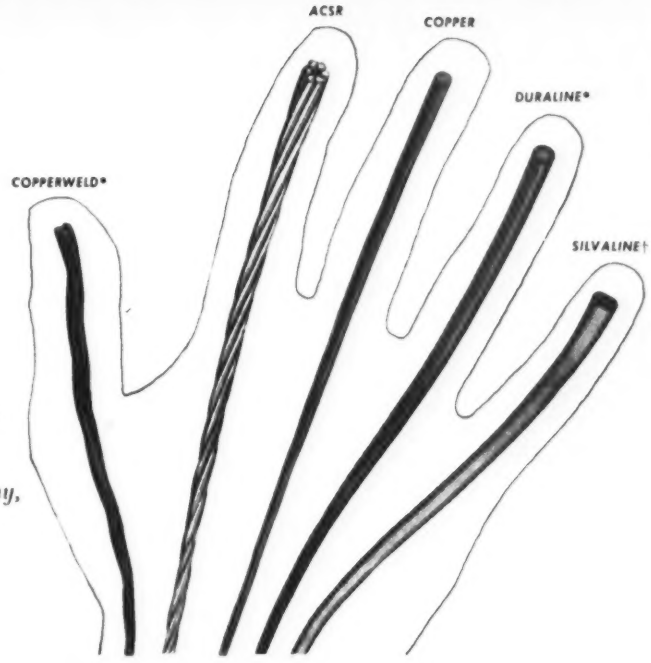

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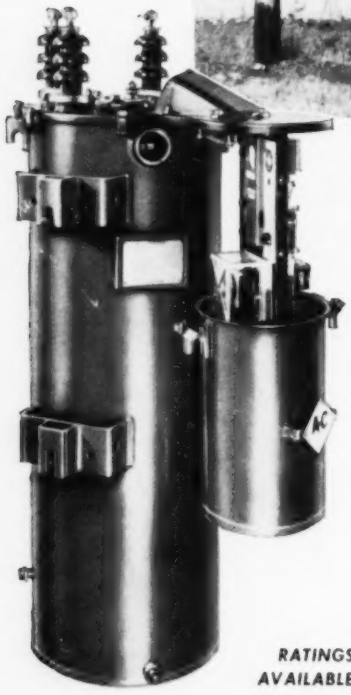

Eight Years' Operation Prove JFR Distribution Regulator Advantages

FIELD-PROVED voltage regulation for every feeder is available with Allis-Chalmers 5/8% step JFR distribution regulators based on the same principle originally introduced in 1933. Before these regulators were added to the A-C line in 1949, their reliability and accuracy were thoroughly tested and proved in five years of operation on a Wisconsin feeder.

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The low price tag on the Allis-Chalmers distribution regulator plus its low maintenance requirements makes regulation possible where it could never be afforded before. Check these operating features: ± 1 volt band, 20% range, 32 small 5/8% steps, easy control adjustment, long life contacts, unit construction.

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